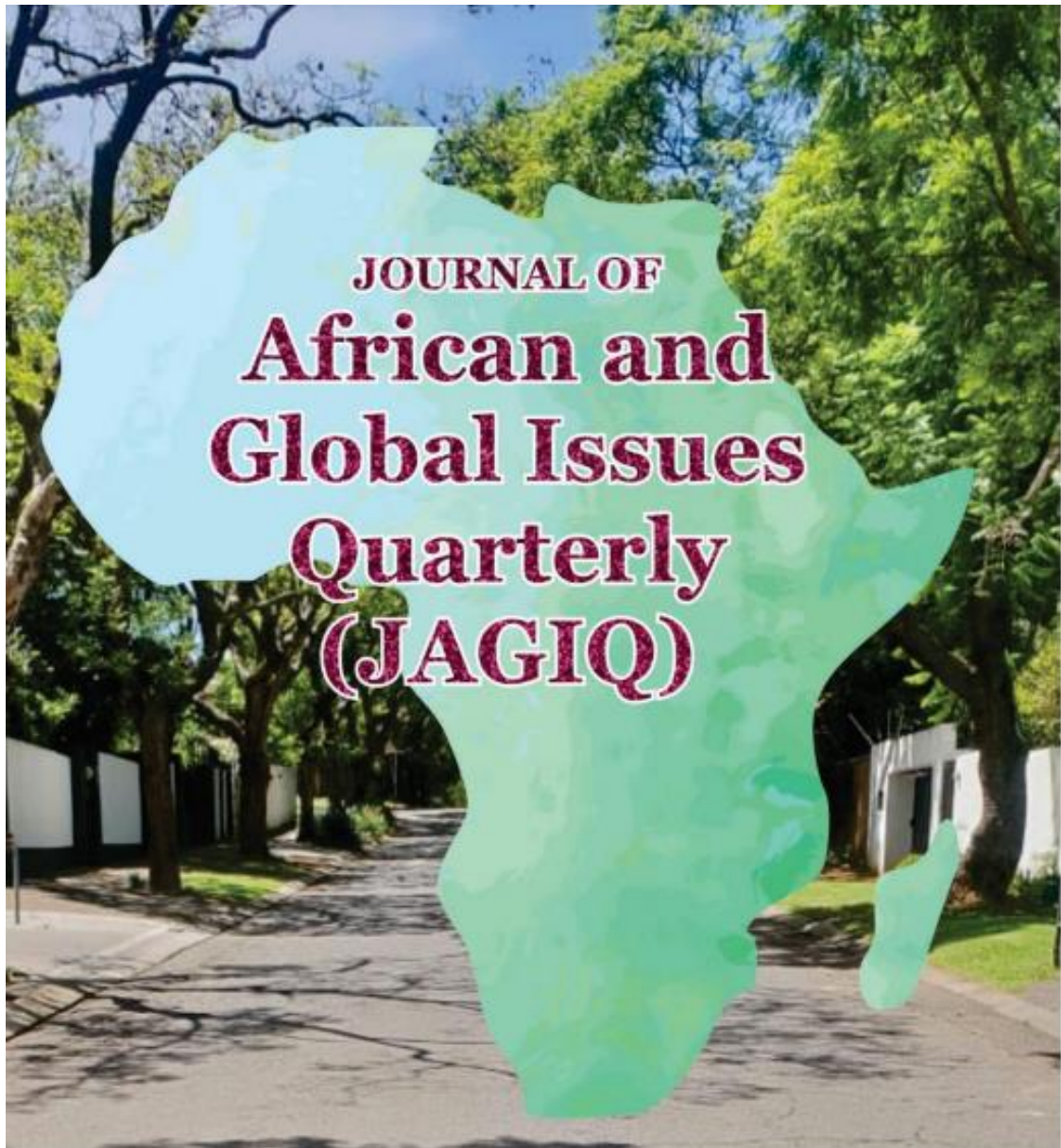




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EDITORIAL NOTE

This volume represents concerted calls within and outside Africa on the need for multidisciplinary collaboration and research output. Specifically, papers were drawn from all disciplines and research focuses, which has further increased the quality of research and collegial engagement. Hence, topics covered in this volume cut across the areas of economics, politics, security, ICT, indigenous knowledge, development studies, finance, trade, youth engagement, agriculture, democratization, and nation-building, among others.

For instance, Thizwilondi Josephine Mudau in *African Youths and the Promotion of Sustainable Development through the Lens of Indigenous Knowledge (IKS) in the 21st Century* employed qualitative desktop research methodology in synthesizing existing literature to argue that IKS represents a dynamic body of wisdom encompassing sustainable agriculture, natural resource management, and community resilience and offers proven, contextually grounded solutions to modern challenges like climate change and food insecurity. The analysis highlights youth-led initiatives across the continent that are revitalizing indigenous crops, integrating traditional ecological knowledge with climate adaptation strategies, and using digital platforms for cultural preservation. Mudau concluded that for Africa to achieve authentic and sustainable development, a concerted effort is needed to empower youth through inclusive education, supportive policy frameworks, and intergenerational dialogue, thereby transforming indigenous knowledge from a cultural heritage into a living toolkit for a resilient future.

Masila Joshua Masipa in *Beneficiaries of Corruption? An analysis of the function of South African banks in handling and making money from crime proceeds* adopted institutional theory and the political economy of corruption and a qualitative research design that combines semi-structured interviews with compliance officers, financial regulators, and civil society actors with document analysis of Zondo Commission and Financial Intelligence Centre (FIC) reports, legal statutes, and policy papers in examining how, in spite of strict anti-money-laundering (AML) and anti-corruption laws, South African banks may profit from, handle, or ineffectively stop the flow of monies associated with corruption. Specifically, with an emphasis on whether banks directly or indirectly benefit from the proceeds of crime, Masipa investigated the relationship between financial institutions and illegal financial flows within the following objectives: (1) assess the regulatory framework that oversees AML compliance; (2) examine high-profile cases of corruption in which banks are implicated; (3) evaluate due diligence and institutional accountability; and (4) suggest changes to improve ethical banking governance.

Then Sipho Patrick Bhengu-Mancosa & Andrishah Beharry-Ramraj in *Advancing Small, Medium, and Micro Enterprise Growth through Digitalized Enterprise and Supplier Development in South Africa* examined the current state of Enterprise and Supplier Development (ESD) in South Africa, investigated the role of digitalization in enhancing ESD, identified the challenges and opportunities in digitalizing ESD, and provided recommendations for policymakers, corporates, and Small, Medium, and Micro Enterprises (SMMEs). A qualitative secondary data approach was employed, drawing on thematic analysis of existing literature, reports, and industry initiatives. For key findings, Bhengu-Mancosa & Beharry-Ramraj indicated that ESD adoption remains limited; digitalization (Mancosa) significantly enhances market access and supplier diversity; infrastructure and skills gaps persist; and strategic digital integration can unlock growth opportunities for SMMEs.

Lere Amusan & Ebenezer O. Oni, in their study, ***Disinvestment of Multinational Corporations (MNCs) in Developing Areas: An Assessment of Shoprite Disengagement in Nigeria, started by reflecting on why***, at the global level, many MNCs have started to disengage from their host states. In a bid to respond to the possible reasons, Amusan & Oni pushed further into examining possible reasons that could explain why Shoprite, a large South African retailing company, disinvested from Nigeria after operating in the country for about 15 years, using secondary sources supported by primary data and personal observations. For them, the reasons range from political, economic, marketing, and legal to civil society attitudes towards their business. Employing the twin theories of neoliberalism and oligopoly that facilitate globalization, Amusan & Oni concluded that, aside from losing litigation to its erstwhile Nigerian business partners, competition from domestic and foreign retail companies contributed in no small measure to why Shoprite exited the Nigerian market.

In A sober teacher is a problem”: Unpacking Political Ideology and Emancipatory Struggles Within teacher unionism, Zwane Thembinkosi Trevor & Matsepe David adopted the grounded postcolonial theory in examining how teacher unions embody and deploy political stances and ideologies to promote the emancipation and freedom of education, as well as the broader communities they aim to serve. Clearly, Trevor and Matsepe employed a qualitative interpretivist approach to analyze data from narrative interviews with unionized educators, along with further examination of public union discussions. Key findings of their research indicated four interrelated themes: (1) political consciousness as both a threat to order and a driver of democratic emancipation; (2) teacher unions functioning as a counter-hegemonic force challenging neoliberal geopolitics and political norms; (3) the ideological repositioning of teacher unions as intellectual activists rather than compliant officials; and (4) tensions between political agency and professional identity.

Douglas Nyath in ***Rural Youth and the Future of Farming in Sub-Saharan Africa: Revisiting the Abandonment Debate*** explored whether rural youth are truly abandoning agriculture or are instead redefining their involvement through diversified livelihood strategies. It examines the socio-economic, institutional, and cultural factors influencing youth decisions and analyzes how emerging hybrid forms of engagement—such as agripreneurship and part-time farming—are reshaping rural economies. A systematic desktop synthesis of peer-reviewed literature (2000–2025) was conducted using databases like Google Scholar, Scopus, and Web of Science. Nyaath observed that youth disengagement from agriculture is not uniform but context-specific, and the key determinants to such disengagement include land scarcity, education, labor market structures, gender norms, and limited access to finance and technology.

Then, in ***Equal Ideals, Unequal Realities: Gender Dynamics in the Workplace of an International Religious Non-governmental Organisation in Eswatini***, Thembumenzi Jomo Ntshalintshali & Innocent Simphiwe Nojiyeza examined attitudes, experiences, and organizational practices regarding gender roles, power dynamics, and inclusivity by drawing on in-depth interviews and focus groups with 20 employees from a range of departments and hierarchical levels. The results of their findings show that male participants, who were primarily ideologically devoted to gender equality, showed conflicted feelings about shifting power dynamics. Unconscious bias, policy implementation gaps, and organizational culture were equally identified as the primary obstacles to change. The results emphasize that in order to guarantee changes in gender equality, context-specific solutions are required that go beyond the adoption of policies.

In Indigenous Knowledge Systems and Environmental Conservation *Ngugi's Petals of Blood*, Thabo Prince Zondo started by reflecting on members of the impoverished and socio-economically disadvantaged community who are distressed by incessant drought and who consult a seer and offer sacrifices to seek solutions. Using this as a point of departure, Zondo explored how text gestures and Indigenous Knowledge Systems (IKS) address the real dilemmas faced by Africans following the extensive and cross-generational crises that accompany coloniality. In this, Zondo provided an ecocritical reading of the text, drawing on relevant postcolonial/decolonial ideas to illustrate the ways in which indigenous African epistemologies can indeed boost efforts at environmental conservation and poverty alleviation in rural communities today.

Also, **Rendani Tshifhumul in Exploring the Role of African Indigenous Knowledge Systems in Healing Practices and Resilience During the COVID-19 pandemic in Thohoyandou**, presented a narrative inquiry into the experiences of individuals who survived COVID-19 without requiring hospitalization, based on in-depth interviews with three respondents. For Tshifhumul, among the identified practices were the inhalation of steam treated with stones and salt, as well as the application of various herbal concoctions, including *Tshiumbeumbe*, *Musese*, *Mufula Musudzungwane*, *Miora*, and *Mubomo*, guava leaves, and lemon grass tea, including a mixture that comprises onion, ginger, lemon, honey, and garlic. Therefore, Tshifhumul concludes that these findings not only shed light on the adaptive strategies employed by individuals in response to the pandemic but also underscore the significance of traditional healing practices in the context of contemporary health crises. Khulisile Judith Nkuna & Sikhumbuzo Sibuso Khoza, in their work, **Capturing Cultural Heritage: Exploring the Poetic Elements of Domesticated Animal Praise**, carried out an analytical analysis of the lyrical components found in the praises of Siswati domestic animals. Nkuna & Khoza observed that expressing gratitude to animals for their contributions to human life remains a significant goal of animal praise. Reflecting on case studies, they noted that the Nguni people view domestic animals as very close environmental companions, particularly for those who live in rural areas. Praise poetry's primary goal is to commemorate great men's accomplishments. However, the reverse is the case for the Swati people, who have a tradition of honoring non-human animals in their poetry, including the wild animals they encounter in their environs as well as the domestic livestock they raise.

Intaher M. Ambe, Ellsworth C. Jonathan, Phathutshedzo D. Lavhelani,* and David H. Selby, in their study, **Exploring the landscape of demand management practices in the public health sector in the Gauteng Province, South Africa: An Empirical Analysis**, employed secondary sources in determining what demand management practices are employed within Gauteng, South Africa, and public health sector institutions. Findings in their study revealed substantial obstacles in organizational structure, demand management techniques, budget, and alignment between demand planning and strategic goals, as well as supply chain management (SCM) rules, regulations, and specifications. They conclude that the paucity of demand management implementation in public sector organizations reveals a misalignment between strategic goals, demand management, and demand planning, resulting in a loss of value for public sector organizations.

Aderinsola E. Kayode, Shalini Sing, & Patricia P. Badenhorst's research, ICT for Indigenous Knowledge Dissemination and Education in Africa: A Systematic Review, conducted a systematic review of literature published between 2015 and 2025 to examine how ICT tools and platforms have been deployed to support indigenous knowledge dissemination and education in African contexts. The findings of their research indicated that

ICT can enhance indigenous knowledge preservation, improve youth engagement, facilitate intergenerational learning, and broaden global visibility of African knowledge systems when implemented with community participation. However, challenges remain regarding digital access, cultural sensitivity, intellectual property rights, and the sustainability of technology-driven initiatives.

In ***Donald Trump-Twitter Diplomatic Disruptions And Impact On The Post-World War II International Order.***, Ndivhoniswani Aaron Tshidzumba & Puseletso Nthate examine how President Donald Trump's unprecedented use of Twitter as a direct channel for foreign policy communication disrupted established diplomatic norms inherited from the post-World War II international order. Through content analysis of Trump's social media communications, examination of foreign policy outcomes, and comparative analysis with traditional diplomatic practices, Tshidzumba & Nthate demonstrated that Trump's social media presidency constituted a significant departure from institutional diplomacy and contributed to broader challenges facing the established international order. Further findings reveal that digital direct engagement by heads of state bypasses institutional constraints, undermines multilateral consensus-building, and creates new vulnerabilities in international relations.

Furthermore, in ***Determinants And Effect Of Small-Scale Livestock Production On Household Income In Malawi: Evidence From Fifth Integrated Household Survey***, Gladson Andrew Chipala, Christopher Chombo & Hannah Dunga examined the determinants and effects of small-scale livestock production on household income among farmers in Malawi, using cross-sectional data from the Fifth Integrated Household Survey (IHS5) with a sample of 8,795 households. Their key findings indicate that household size, access to credit, access to extension services, landholding size, distance to the market, and location in the Northern region significantly increase the likelihood of participation in livestock production. Notably, households engaged in livestock production earned, on average, an additional MWK 36,405.76 compared to non-producing households, demonstrating its important role in improving economic welfare.

In ***Navigating Artificial Intelligence Personalization and Consumer Privacy in Digital Marketing across South Africa and Global Contexts***, Suraksha Moothura and Andrisa Beharry-Ramraj critically examined how AI-driven hyper-personalization in digital marketing influences consumer privacy, with a specific focus on its ethical implications and regulatory challenges in South Africa in comparison to global standards using desktop literature review methodology. Moothura & Beharry—Ramraj observed that ethical concerns such as manipulation, algorithmic bias, and reduced consumer autonomy were found to be inadequately addressed in South Africa, where legal instruments like POPIA lack the specificity and enforcement capacity evident in global standards like the GDPR. Taleat, Bisiriyu Abiodun & Lukamba, Muhlya Tshombe's article, ***Energy Sustainability and Sustainable Development Agenda: The Role of Public-Private Partnership in South Africa***, investigated the role and effectiveness of Public-Private Partnerships (PPPs) in South Africa's energy development towards sustainability using a qualitative desk research methodology to analyze secondary data from policy documents, scholarly literature, and government publications. For Abiodun & Tshombe, key findings demonstrate that PPPs have attracted a substantial amount of private investment and benefited the economy through job creation and community development. However, institutional and systemic barriers, e.g., Eskom monopoly, regulatory uncertainty, grid integration constraints, and institutionalized dependency on coal, impede the full implementation of PPPs in accelerating the energy transformation. Hence, they recommend policy stability, energy regulation reform, enhancing

financial methods, and ensuring that social equity consideration is factored into PPP structures.

For Olukayode Idris Lasisi in *The Governance–Development Nexus in Nigeria: A Conceptual Synthesis of Good Governance and Policy Discourse Theories*, a qualitative, conceptual, and desk-based review approach was employed, relying on the literature, policy documents, and theoretical frameworks in reevaluating the governance development interface in Nigeria in terms of the role of institutional weaknesses, the inconsistency of policies, and discursive framing in the determination of sustainable development outcomes. Findings revealed that weak institutions, corruption, bureaucratic inefficiencies, low accountability, and marginalization in policymaking processes bedeviled Nigeria’s sustainable development, thereby distorting policy implementation and weakening effective service delivery. Lasisi concludes by calling for the need to strengthen institutions, improve transparency, guarantee policy sustainability, encourage civic participation, and apply digital governance solutions, which is essential to attaining sustainable development.

Eyitayo Francis Adanlawo & Mpho Chaka in *The Effect of Ethnicity And Politics on the Democratization of African Nations* examined the theoretical challenge that ethnicity poses to the African state and the challenges it poses for democratization on the continent. To guide the discourse, critical questions are raised: What kind of connection exists in Africa between politics and ethnicity? Under what conditions may ethnicity either support or undermine democracy? Can citizenship rights be reconciled with ethnicity? . Furthermore, Adanlawo & Chaka explored the evolution of ethnicity from the viewpoints of development communication and provided it with a psycho-social meaning. In their conclusion, Adalanwo & Chaka posited that, if ethnicity has an informative component, we should anticipate that voters' reliance on ethnic cues will decrease when certain forms of higher-quality information become available.

Lindokuhle Senamile Ntuli & Innocent Simphiwe Nojiyeza in *Does Resource Scarcity Constrain Rural Women’s Entrepreneurial Performance in KwaZulu-Natal, South Africa?*, examined whether resource scarcity significantly constrains the entrepreneurial performance of rural women in KwaZulu-Natal (KZN), South Africa. Anchored in the Resource-Based View (RBV), the study adopts a quantitative research design using survey data collected from 273 rural women entrepreneurs across uMhlabuyalingana, Big5Hlabisa, and eJozini municipalities. **Ntuli & Nojiyeza** revealed statistically significant relationships between entrepreneurial performance and seven resource-based constraints: leadership skills, financial institutional barriers, entrepreneurial experience, regulatory constraints, access to financial resources, technological limitations, and limited training opportunities. Lastly, in *Transformative Governance Frontiers: Relational Public Administration for Smart City Inclusivity*, Melvin Diedericks examined the conceptualization of informal systems in the context of South African smart city initiatives. By repositioning informal systems as co-creators in urban governance, this study advocates for a paradigm shift from technocratic optimization to relational inclusion. This reframing aligns with South Africa's constitutional and developmental goals, enabling transformative governance and the effective localization of SDGs in sustainable cities.

It is expected that these works compiled in this volume will further enrich the discourse and provide policy options to individuals, governments, and countries, particularly in Africa.

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ADVANCING SMALL, MEDIUM AND MICRO ENTERPRISE GROWTH THROUGH DIGITALISED ENTERPRISE AND SUPPLIER DEVELOPMENT IN SOUTH AFRICA

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ABSTRACT

Enterprise and Supplier Development (ESD) has been positioned as a key driver of inclusive economic growth in South Africa, particularly in enhancing the participation of Small, Medium, and Micro Enterprises (SMMEs) in corporate supply chains. While digitalisation has emerged as a transformative force for market access, operational efficiency, and competitiveness, its integration into ESD frameworks remains inconsistent, limiting its potential to address persistent barriers faced by SMMEs. Therefore, this study examined the current state of ESD in South Africa; investigated the role of digitalisation in enhancing ESD; identified the challenges and opportunities in digitalising ESD; and provided recommendations for policymakers, corporates, and SMMEs. A qualitative secondary data approach was employed, drawing on thematic analysis of existing literature, reports, and industry initiatives. The findings indicated that ESD adoption remains limited; digitalisation significantly enhances market access and supplier diversity; infrastructure and skills gaps persist; and strategic digital integration can unlock growth opportunities for SMMEs. Based on these findings, the study recommended increased investment in digital infrastructure, skills development, and market platforms, the digitisation of procurement systems, and targeted policy interventions to bridge the digital divide and promote sustainable SMME participation in the economy.

Keywords: *Digitalisation, Enterprise and Supplier Development, Small Medium and Micro Enterprises, Corporate Supply Chain, South Africa.*

INTRODUCTION

South Africa's economy continues to face entrenched structural constraints characterised by persistently high

unemployment, widening inequality, and slow economic growth (World Bank, 2020). Economic activity remains concentrated among large

corporations that exert considerable control over supply chain structures and market access (Mncube & Parafor, 2020). Although Small, Medium and Micro Enterprises (SMMEs) constitute the majority of formal business entities and are widely recognised as drivers of employment, innovation, and inclusive growth, their participation in mainstream corporate value chains remains disproportionately limited (Fatoki, 2020). This structural imbalance reinforces patterns of economic exclusion and constrains the transformative potential of South Africa's development agenda.

ESD, embedded within the Broad-Based Black Economic Empowerment (B-BBEE) framework, has been positioned as a strategic instrument to address these disparities by integrating SMMEs into corporate procurement systems (DTI, 2019). Through targeted procurement, mentorship, capacity-building initiatives, and financial support, ESD aims to enhance supplier diversity and stimulate local economic development (Bhengu & Vil-Nkomo, 2022). When effectively operationalised, ESD has the potential to contribute to a more inclusive and resilient economic ecosystem (UNDP, 2022). However, despite a robust policy framework, implementation remains uneven across sectors, with evidence suggesting that ESD frequently operates as a compliance-driven mechanism rather than a growth-oriented developmental strategy (Bhengu & Vil-Nkomo, 2022).

Concurrently, digitalisation has emerged globally and across the African continent as a transformative force reshaping production systems, market structures, and supply chain

governance (UNCTAD, 2020). Digital technologies such as cloud computing, artificial intelligence, e-commerce platforms, and blockchain-based procurement systems enable enterprises to expand market access, optimise operational efficiency, and enhance competitiveness within local and global value chains (Kshetri, 2020). Yet in South Africa, a persistent digital divide between large corporations and SMMEs constrains equitable participation in digitally integrated supply chains (GITTA, 2022). Many SMMEs face limitations in access to infrastructure, digital skills, finance, and market platforms, which restrict their ability to benefit fully from both ESD programmes and broader digital transformation trends (Mpinganjira, 2021).

While digitalisation is widely recognised as a mechanism for improving supply chain transparency, efficiency, and competitiveness (Sutton, 2023), its integration into South Africa's ESD frameworks remains fragmented and insufficiently theorised. Existing scholarship tends to treat ESD as a compliance-based empowerment instrument (Bhengu & Vil-Nkomo, 2022) or digitalisation as a standalone driver of SMME performance (Mpinganjira, 2021). What remains underexplored is the structural intersection between digitalisation and ESD, specifically, how digital technologies can be systematically embedded within procurement systems, supplier development pipelines, and corporate value chains to overcome operational inefficiencies and structural exclusion. Although international evidence demonstrates that coordinated digital ecosystems can accelerate SMME integration into high-value supply chains (Radicic et al., 2023; Lukonga,

2020), there is limited conceptual clarity on how such integration can be achieved within the South African context.

The central research problem therefore extends beyond the slow uptake of digital tools. It concerns the absence of a structured analytical framework explaining how digitalisation can be embedded within ESD architecture to enhance supplier competitiveness, inclusivity, and long-term sustainability. Without this integration, ESD risks remaining a policy instrument of formal compliance rather than a transformative engine of scalable SMME participation.

Against this backdrop, this study investigates the role of digitalisation in advancing ESD and accelerating SMME development within South Africa's corporate supply chains. Specifically, the study examines the current state of ESD implementation; analyses how digital technologies can enhance supplier integration and competitiveness; identifies the challenges and opportunities associated with digitalising ESD; and proposes strategic recommendations for policymakers, corporates, and SMMEs. By synthesising fragmented bodies of literature on ESD and digital transformation, the study contributes to both theoretical discourse and practical strategy by articulating pathways for digitally enabled supplier development. In doing so, it positions digitalisation not as a peripheral enhancement, but as a strategic reconfiguration of ESD capable of supporting inclusive economic transformation in South Africa.

LITERATURE REVIEW

This literature review critically examines the intersection of ESD and digitalisation in the South African context, focusing on the role of technology in advancing SMMEs. It draws on both local and international scholarship to analyse four key areas aligned with the study's objectives: the current state of ESD in South Africa; the role of digitalisation in enhancing ESD; the challenges and opportunities associated with digitalising ESD; and strategic insights for policymakers, corporates, and SMMEs on leveraging digital tools for inclusive growth. The section adopts a thematic structure to enable detailed analysis, drawing on empirical evidence, policy reports, and theoretical perspectives to interrogate where ESD practice aligns with or diverges from its intended transformational outcomes. Figures and tables are incorporated to visually represent technological benefits and barriers, providing an integrated understanding of how digitalisation can reconfigure ESD from a compliance-oriented obligation into a dynamic driver of sustainable economic development.

Current State of ESD in South Africa

ESD in South Africa is embedded in the country's B-BBEE framework, designed to address systemic economic exclusion by integrating SMMEs into formal corporate value chains (DTI, 2019). Bhengu and Vil-Nkomo (2022) argue that while ESD has the potential to be transformative, in practice it often operates as a compliance-oriented mechanism rather than as a driver of enterprise growth. This compliance culture, as Mncube and Parafor (2020) note,

frequently results in large corporations engaging with SMMEs only to meet legislative quotas, rather than fostering long-term, sustainable supplier relationships.

The contribution of SMMEs to the South African economy is well documented, with Fatoki (2020) stating that they comprise more than 90% of formal business entities and play a central role in job creation. However, these enterprises remain constrained by limited access to finance, markets, and skills development opportunities, reducing their ability to take full advantage of ESD initiatives. According to the World Bank (2020), macroeconomic stagnation further limits SMME absorptive capacity, as low GDP growth and high unemployment place additional pressure on small business sustainability. UNDP (2022) contends that while ESD has the capacity to contribute to inclusive growth, its potential is diminished when sectoral uptake is uneven, as is particularly evident in the ICT and financial services sectors, where supplier diversification remains minimal.

The township economy provides an important case study of both the successes and failures of ESD implementation. Gauteng Enterprise Propeller (2022) highlights programmes such as the Township Digital Market Access Programme, which provide e-commerce access, branding assistance, and inventory management support to township-based SMMEs. However, the Township Economy Partnership Fund (2022) reveals that such initiatives, while impactful, remain geographically constrained and fail to achieve national scalability. Microsoft (2022) underscores the potential

benefits of partnerships between global technology firms and local SMMEs, as seen in township-based digitisation projects, yet these collaborations are rare and often dependent on corporate social investment budgets. IDC (2022) reports a significant R10 billion investment in township economies, yet structural challenges such as inadequate infrastructure and poor digital literacy persist, hindering the long-term sustainability of these investments.

Consequently, while the policy framework for ESD is robust, its operational reality shows a persistent gap between strategic intent and measurable enterprise empowerment. The literature suggests that unless ESD moves beyond compliance into a growth-driven paradigm, its transformative promise will remain largely unrealised.

Role of Digitalisation in Enhancing ESD

Digitalisation has emerged as a transformative lever for overcoming the systemic inefficiencies that limit ESD's impact. Kshetri (2020) explains that integrating digital tools, ranging from e-commerce platforms to blockchain-based procurement systems, can enhance transparency, reduce costs, and expand market access for SMMEs. Sutton (2023) argues that automation, AI-powered analytics, and blockchain not only improve operational efficiency but also enable predictive modelling of market trends, allowing suppliers and corporates to respond proactively to shifting demands.

The resilience benefits of digitalisation have been particularly visible in the wake of the COVID-19

pandemic. UNCTAD (2022) notes that digitally enabled businesses adapted more effectively to supply chain disruptions, sustaining market engagement where traditional suppliers faltered. Lukonga (2020) supports this, observing that digital platforms allow SMMEs to scale operations without proportional increases in operating costs, thereby improving competitiveness. However, GITTA (2022) identifies persistent inequalities in digital access, with rural and township economies facing the greatest infrastructural deficits.

The potential for digitalisation to align with sustainability objectives is underscored by Ionescu-Feleagă et al. (2023), who argue that optimised supply chains can reduce resource

wastage and improve environmental performance. Bertocchi (2022) further asserts that digital procurement systems strengthen governance by making every step of the procurement process visible, thus reducing opportunities for corrupt interference. The European Commission (2023) provides empirical evidence from Digital Innovation Hubs (EDIHs), which have facilitated a 35% increase in AI adoption among participating SMMEs, along with measurable improvements in automation efficiency.

These benefits are summarised in figure 1 below, which illustrates the scalability, cost-efficiency, and collaboration potential unlocked by digital technologies.

	Descriptions	Benefits for SMEs
 Internet of Things	Enables a host of new business models, applications and services based on data collected from devices and objects. For instance, a GPS embedded in a telephone can track the users location	▪ Better interaction with clients ▪ Improved efficiency and reduction in operational costs ▪ In retail stores: Allows SMEs to provide tailored products ▪ In production: Anticipate stock replacement ▪ In Logistics: Calculate better delivery routes and improves customer experience
 Cloud Computing	Cloud computing is the delivery of computing services like servers, storages and more over the internet. Cloud providers charge for cloud services based on usage. The services include Infrastructure as a Service (IaaS), Platform as a Service (PaaS), Software as a Service (SaaS) or storage, data base, etc.	▪ Most SMEs opt for SaaS or IT services from niche service providers which helps reduce cost of digitalization, partially addresses the knowledge gap and ensures cost effective security. ▪ Reduces upfront ICT infrastructure costs, and software easier to install, maintain and update ▪ Resources can be used and priced in a scalable and adaptable manner, and reduces piracy risk
 Big Data Analytics	Analysis of data characterised by high volume, velocity and variety of sources, such as market transactions, data retrieved from sensors or social media content	▪ Effective use of data for business decisions ▪ Gives SMEs a competitive advantage and ability to compete with larger firms ▪ Reduced costs and increased productivity ▪ Enhanced design of marketing projects ▪ Ability to foresee and identify trends
 Artificial Intelligence	AI is the ability of machines and systems to acquire and apply knowledge, including by performing a broad variety of cognitive tasks, such as sensing, processing language, pattern recognition, learning and making decisions and predictions. Machine Learning is key to the development of AI.	▪ Fewer employee expenses, as robots can execute several repetitive tasks ▪ Greater efficiency ▪ Reduced errors related to the collection and analysis of vast amounts of data
 Blockchain	Enables applications to authenticate ownership and carry out secure transactions for a variety of asset types. It is a ledger or spreadsheet that is maintained and stored across a network of computers. The network regularly updates the database in every place it exists, so that all copies are identical	▪ Provides full transparency, allowing buyers and sellers to inquire into the original source of information ▪ Smaller businesses can obtain more types of trusted information at lower cost ▪ Has been effectively applied in real estate to provide reliable collateral registries

Figure 1: Digital Technologies and the Potential Benefits (Source: *OECD Idea Factory Harnessing Digital Technologies for Entrepreneurs and SMMEs, 2019*)

Figure 1 illustrates the interdependent relationship between core digital technologies (IoT, Cloud Computing, Big Data, Artificial Intelligence, and Blockchain) and their functional benefits for SMMEs. Rather than presenting isolated technological features, the figure reveals how each tool addresses a specific structural weakness in enterprise development: IoT enhances operational visibility, Cloud Computing reduces infrastructure barriers, Big Data strengthens strategic decision-making, AI improves efficiency and automation, and Blockchain increases transparency and trust. In the South African ESD context, this configuration indicates that digitalisation reduces information asymmetry, lowers entry barriers to procurement systems, and enhances supplier credibility. The figure therefore demonstrates that digital technologies collectively function as institutional enablers capable of transforming ESD from a compliance instrument into a performance-driven supply chain strategy.

Therefore, the literature frames digitalisation not as a peripheral enhancement to ESD, but as a fundamental reconfiguration of its processes, transforming it from a compliance-focused mechanism into a strategic driver of SMME growth.

Challenges and Opportunities in Digitalising ESD

Despite the promise of digitalisation, its implementation within ESD in South Africa is constrained by structural, financial, and skills-related barriers. Telukdarie et al. (2023)

identify inadequate ICT infrastructure, unreliable connectivity, and affordability as major obstacles, particularly in township and rural areas. Bhengu and Vil-Nkomo (2022) warn that without substantial investment in digital literacy, digital ESD initiatives risk privileging suppliers who already possess technological capabilities, thereby excluding the most disadvantaged. Achieng et al. (2022) observe that many SMMEs lack formalised business strategies or integrated information systems, making it difficult to align digital tools with profitability objectives; this often results in fragmented adoption and minimal returns.

By contrast, Radicic et al. (2023) highlight Germany's SMME competence centres as an example of coordinated policy intervention, combining strategy development, training, and technological support to raise firms' digital maturity. McKinsey & Company (2022) point out that digital supplier diversity initiatives can expand opportunities for underrepresented enterprises, but only if procurement policies actively dismantle structural biases. Bertocchi (2022) supports this view, noting that while digital platforms can enhance transparency and efficiency, they require strong institutional oversight to ensure inclusivity.

Opportunities arise from the integration of advanced technologies. Sutton (2023) emphasizes that artificial intelligence (AI) can anticipate market changes, blockchain can secure transactions, IoT can track and manage inventory in real-time,

and cloud computing can enable scalable, cost-effective collaboration. Lin and Karia (2023) argue that such tools level the competitive playing field by enabling smaller enterprises to match the operational sophistication of larger firms. Karadayi-Usta (2024) adds that embedding sustainability

metrics into digital supply chains can create new sources of competitive advantage.

These opportunities and challenges are summarised in figure 2, which consolidates the key benefits of technology adoption in ESD.

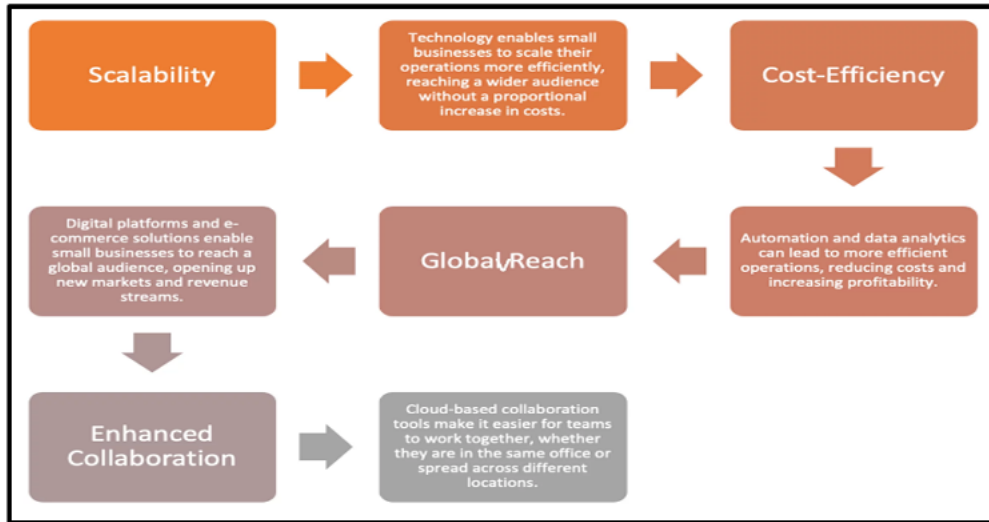


Figure 2: Benefits of Technology in ESD (Source: Sutton, 2023)

Figure 2 presents a capability-outcome progression model of digital ESD. It shows that digital technologies generate operational efficiencies (cost reduction and scalability), which in turn enable market expansion (global reach), and ultimately facilitate ecosystem integration (enhanced collaboration). In the South African context, this model suggests that digital transformation must follow a structured implementation pathway. Immediate efficiency gains create the foundation for competitiveness, but long-term inclusion depends on integrated digital platforms that connect SMMEs, corporates, financiers, and regulators. The figure thus reinforces that digital ESD is most effective when technological adoption is synchronised with institutional coordination and capacity

development, rather than implemented as isolated procurement reforms.

Complementing this, table 1 outlines the main obstacles and potential solutions to technology adoption within ESD, reinforcing that a balanced approach, addressing both infrastructure and human capital, is essential.

Table 1: Benefits of Using Technology in ESD (Source: Constructed by researchers)

Challenges	Solutions
Cost of Implementation: Small businesses may find the initial cost of adopting new technologies prohibitive	Leveraging open-source solutions or Software as a Service (SaaS) models can reduce costs.
Lack of Technical Skills: Small business owners may lack the technical expertise to implement and manage new technologies.	Online training programs and hiring freelance experts can bridge the skills gap.
Data Security: Storing business data on cloud platforms can raise concerns about data security	Using secure and reputable cloud services with robust encryption methods can mitigate this risk.

Strategic Insights for Policy, Corporate, and SMME Engagement

Scaling the benefits of digitalised ESD requires coordinated interventions across the policy, corporate, and enterprise levels. UNCTAD (2020) stresses the need for government-led investment in ICT infrastructure and supportive regulatory environments. GIZ (2019) concurs that infrastructure upgrades must be complemented by targeted capacity building to prepare SMMEs for participation in digitally integrated value chains.

At the corporate level, the European Commission (2023) demonstrates through EDIH models that multi-stakeholder collaboration accelerates technology adoption and drives innovation ecosystems. Microsoft (2022) showcases the effectiveness of private, public partnerships in delivering digital skills and platform access, particularly for township-based enterprises.

From the SMME perspective, Mpinganjira (2021) insists that digital transformation must be embedded in core business strategy, ensuring that technology adoption is tied to measurable growth and competitiveness objectives. NPC (2020) argues that integrating digitalisation into long-term development plans enhances economic resilience and competitiveness. Myres et al. (2024) caution, however, that unless these strategies are underpinned by transparent governance and equitable access, digitalisation risks reinforcing existing market hierarchies rather than dismantling them.

The literature therefore makes clear that digitalisation, when implemented with strategic alignment and inclusivity, can reconfigure ESD into a driver of sustainable and equitable economic growth, provided that policy, corporate practice, and SMME engagement are harmonised in a mutually reinforcing ecosystem.

Across the reviewed literature, it is evident that ESD remains a strategically important yet inconsistently implemented tool for fostering SMME participation in South Africa's corporate value chains. While the policy framework is robust, its impact has been curtailed by structural barriers, uneven sectoral uptake, and a compliance-focused approach that limits transformative outcomes. Digitalisation emerges as a critical lever for addressing these constraints, with evidence showing that technologies such as AI, blockchain, IoT, and cloud computing can enhance transparency, efficiency, scalability, and inclusivity in ESD programmes. However, the realisation of these benefits is contingent on overcoming significant challenges, including infrastructural deficits, affordability constraints, skills gaps, and governance weaknesses.

The literature converges on the view that the successful digital transformation of ESD requires coordinated efforts among policymakers, corporates, and SMMEs. Policymakers must establish enabling environments through infrastructure investment and regulatory reform; corporates must integrate inclusive digital supplier strategies into their procurement practices; and SMMEs must embed digital tools within their business models to achieve measurable growth and competitiveness. Therefore, the intersection of ESD and digitalisation represents both a challenge and an opportunity: a challenge because of the systemic constraints that must be overcome, and an opportunity because of the potential to reconfigure South Africa's economic landscape in ways that are more equitable, innovative, and resilient.

THEORETICAL FRAMEWORK

This study is grounded in Dynamic Capabilities Theory, which provides a suitable lens for understanding how digitalisation can transform ESD into a sustainable mechanism for SMME growth. Dynamic Capabilities Theory posits that firms achieve competitive advantage not merely through possession of resources, but through their ability to integrate, build, and reconfigure internal and external competencies in response to rapidly changing environments (Teece, 2016). In volatile and digitally evolving markets, organisations must develop the capability to sense opportunities, seize them strategically, and reconfigure operational processes to sustain competitiveness (Sainsbury, 2020).

The relevance of Dynamic Capabilities Theory to this study lies in its emphasis on adaptation and transformation. South African SMMEs operate within constrained and uneven institutional environments characterised by infrastructural deficits, limited access to finance, and compliance-driven procurement systems. Within this context, digitalisation represents not simply a technological upgrade but a strategic capability that allows enterprises to reconfigure how they access markets, manage procurement processes, and compete within corporate supply chains. From a dynamic capabilities perspective, firms that effectively integrate digital technologies strengthen their organisational flexibility and responsiveness in uncertain environments (Gremme & Wohlgemuth, 2017).

The theory further suggests that sustainable participation in competitive value chains depends on

the ability of firms to continuously align internal capabilities with external technological and institutional shifts (Kapoor & Aggarwal, 2020). Applied to ESD, this means that SMMEs must develop digital capabilities that enable them to meet procurement standards, reduce information asymmetries, and signal reliability to corporate buyers. At the same time, corporates and policymakers must cultivate ecosystem-level dynamic capabilities by reconfiguring procurement architectures and supplier development frameworks to support digital integration (Gupta, 2021).

Dynamic Capabilities Theory also provides a framework for interpreting uneven outcomes in ESD implementation. Where ESD remains compliance-driven, firms may lack the adaptive capabilities required for sustained competitiveness. Conversely, when digitalisation is embedded strategically within ESD structures, enterprises are better positioned to sense emerging market demands, seize procurement opportunities, and reconfigure resources efficiently (Teece, 2016). Thus, digitalised ESD can be conceptualised as a mechanism through which dynamic capabilities are cultivated at both firm and ecosystem levels.

In this study, Dynamic Capabilities Theory underpins the analytical interpretation of findings by explaining how digital technologies enhance SMME competitiveness not merely through access, but through capability transformation. The framework positions digitalisation as a strategic enabler that strengthens sensing (market intelligence and data analytics), seizing (digital

procurement and tender participation), and reconfiguring (process automation and scalability) capacities within SMMEs (Sainsbury, 2020). Accordingly, the successful digital transformation of ESD depends on the development of adaptive, learning-oriented, and technology-integrated capabilities across the entire supplier development ecosystem.

By applying Dynamic Capabilities Theory, this study moves beyond descriptive accounts of digital adoption and instead explains the structural mechanisms through which digitalised ESD can generate sustained competitive advantage and inclusive economic participation in South Africa.

METHODOLOGY

This study adopted a qualitative research design grounded entirely in the analysis of secondary data to examine the digitalisation of ESD and its implications for SMMEs in South Africa. A qualitative approach was deemed appropriate because the study sought to explore conceptual relationships, structural patterns, and policy-level dynamics at the intersection of ESD and digitalisation rather than measure firm-level behavioural outcomes. Given that digitalised ESD remains an emerging and under-theorised phenomenon in the South African academic and policy landscape, a secondary data design enabled a comprehensive synthesis of dispersed knowledge across scholarly, policy, and industry domains.

Primary data collection was deliberately excluded for both conceptual and methodological reasons. First, the study's objective was to interrogate systemic and structural linkages between

digitalisation and ESD frameworks at a macro and meso level, rather than to examine firm-specific experiences or perceptions. Such an inquiry requires broad policy, institutional, and comparative insights that are more appropriately captured through documentary and literature-based analysis. Second, ESD practices in South Africa are often embedded within corporate governance structures that limit access to procurement data and internal strategy documents, making large-scale primary data collection potentially restrictive and fragmented. Third, the rapidly evolving nature of digitalisation policy and supply chain practices necessitated the integration of up-to-date institutional reports, international comparative models, and multi-sector evidence, which secondary data allowed more effectively than a bounded primary sample would have. Thus, excluding primary data strengthened rather than weakened the study's analytical scope by enabling macro-level synthesis and cross-contextual comparison.

The study employed documentary analysis of peer-reviewed journal articles, government reports, policy frameworks, industry publications, corporate ESD strategy documents, and reports from international development agencies. This multi-source strategy enhanced methodological rigour through triangulation, ensuring that findings were not dependent on a single institutional perspective. By integrating academic, policy, and practitioner sources, the study captured a comprehensive representation of how ESD and digitalisation are conceptualised and operationalised across different domains.

Thematic analysis, as defined by Nicolas (2021), was used to systematically identify, analyse, and interpret recurring patterns within the collected secondary data. This method was selected for its flexibility and suitability in synthesising large volumes of qualitative documentary material. The approach facilitated the identification of convergences, divergences, and structural gaps within the literature, allowing the study to move beyond descriptive summary towards analytical integration.

Data management and coding were conducted using NVivo software to ensure transparency and replicability. All documents were imported, cleaned, and categorised according to the study objectives. An inductive coding process was applied, whereby initial nodes were developed from emergent patterns within the data and iteratively refined into higher-order thematic constructs (Dye, 2023). This iterative refinement enabled the development of an analytical framework that captured the structural intersection between digitalisation and ESD, rather than treating them as isolated phenomena.

The use of systematic secondary data analysis therefore allowed the study to construct a theoretically grounded and policy-relevant synthesis of digitalised ESD in South Africa. By focusing on macro-level institutional design, ecosystem alignment, and structural integration, the methodology ensured that the findings contribute both to academic discourse and to practical strategic guidance for policymakers, corporates, and SMMEs operating within the digital ESD ecosystem.

FINDINGS AND DISCUSSIONS

The secondary evidence indicates that ESD in South Africa is structurally significant yet operationally inconsistent, with the policy intent of integrating SMMEs into corporate value chains often diluted by compliance-driven practice rather than growth-oriented strategy (DTI, 2019). Bhengu and Vil-Nkomo (2022) argue that while ESD is framed as an engine of transformation, implementation frequently privileges checkbox procurement over deliberate enterprise capability building, which constrains developmental returns. Mncube and Parafor (2020) further contend that large corporates tend to revert to incumbent supplier relationships, thereby muting the market access gains ESD is supposed to unlock for new entrants. Fatoki (2020) shows that persistent obstacles (finance gaps, market barriers, and limited skills) reduce SMMEs' ability to leverage ESD pipelines even when opportunities nominally exist. The macroeconomic context intensifies these frictions, as slow growth and high unemployment depress demand conditions and restrict SMME absorptive capacity for new contracts (World Bank, 2020).

UNDP (2022) nevertheless maintains that where ESD initiatives are designed around capability development and purposeful inclusion, the instrument can catalyse more equitable participation and productivity spillovers. Sectoral patterns complicate this image, because the ICT and financial services domains show relatively low supplier diversification, which weakens ESD's broader reach into high-value chains (GITTA, 2022). The township

economy illustrates this duality: targeted provincial programmes and funds demonstrate that curated interventions can lift digital readiness and visibility, yet their localised scope and infrastructure constraints limit diffusion at national scale (Gauteng Enterprise Propeller, 2022). Technology partnerships and large cheques into township ecosystems indicate corporate appetite, but without complementary skills pipelines and platform access, these investments struggle to translate into durable competitiveness for small firms (Microsoft, 2022). In short, the state of ESD reflects a capable policy scaffold undermined by uneven execution, with transformation potential unlocked where firms are supported to become reliable, tech-enabled suppliers rather than temporary quota fillers (IDC, 2022).

Against this backdrop, the literature positions digitalisation as both a corrective and an accelerant for ESD's unrealised promise, because digital tools can lower transaction costs, widen discovery of qualified suppliers, and make performance auditable end-to-end (Kshetri, 2020). Sutton (2023) explains that automation streamlines onboarding and compliance, analytics target capability gaps with precision, and blockchain architectures encode rules that reduce discretion and speed cycle times. UNCTAD (2022) reports that digitally enabled firms exhibited greater operational resilience during disruption, implying that programmatic digital adoption within ESD can harden supply chains while widening SMME participation. Lukonga (2020) adds that platformisation allows small firms to

scale without proportional fixed costs, which directly addresses the thin margins that often deter corporate buyers from onboarding emergent suppliers. Ionescu-Feleagă et al. (2023) extend this argument by showing that digital optimisation aligns with sustainability by reducing resource waste and enabling traceability that buyers increasingly demand.

Bertocchi (2022) demonstrates that e-sourcing and digital procurement cut opacity and manual bottlenecks, which lowers barriers for new entrants while improving probity. European Commission (2023) provides comparative evidence that structured support via Digital Innovation Hubs materially raises adoption of AI and automation among SMEs, suggesting that ecosystem scaffolding matters as much as firm-level appetite. Arranz et al. (2023) note that when supply chains digitise as systems rather than as isolated projects, coordination gains compound across procurement, logistics, and quality control. Tubis et al. (2023) similarly argue that digital architectures reconfigure supplier selection and performance management, with implications for how diversity and capability criteria are embedded upstream. Lin and Karia (2023) show that cloud and AI tools collapse time-to-insight for both buyers and suppliers, which is pivotal when smaller firms must signal reliability quickly to overcome status disadvantages.

Figure 1 does not merely list technologies; it visually demonstrates the functional logic through which digital tools transform enterprise capability. The figure shows that Internet of Things (IoT), Cloud Computing, Big Data, Artificial

Intelligence, and Blockchain operate as interlinked enablers rather than isolated tools. For South African ESD, this reveals that digitalisation must be systemic. For example, IoT improves operational visibility, Cloud Computing lowers infrastructure entry barriers, Big Data enhances decision-making, AI automates compliance and analytics, and Blockchain strengthens procurement transparency. When interpreted in the South African ESD context, Figure 1 highlights that scalability and cost-efficiency are not abstract benefits but mechanisms through which SMMEs can overcome structural exclusion from corporate supply chains. Specifically, scalability allows township and rural SMMEs to expand production without proportional cost increases; cost-efficiency reduces onboarding resistance from corporates; global reach enables participation beyond geographically bounded markets; and enhanced collaboration supports supplier–buyer integration through shared digital platforms. Therefore, Figure 1 reveals that digital technologies collectively reduce transaction friction, credibility gaps, and information asymmetry, which are core barriers currently weakening ESD implementation in South Africa. Therefore, the literature frames digitalisation not as a peripheral enhancement to ESD, but as a fundamental reconfiguration of its processes, transforming it from a compliance-focused mechanism into a strategic driver of SMME growth.

However, the same evidence base is clear that digitalisation is not a frictionless panacea and can reproduce exclusion if the enabling conditions are weak, especially in places where connectivity, affordability, and skills are uneven (Telukdarie et al., 2023).

Bhengu and Vil-Nkomo (2022) caution that digital portals without parallel human capability development simply shift gatekeeping from paper to platforms, leaving the least digitally ready suppliers further behind. Achieng et al. (2022) show that many SMMEs lack the strategic planning and information systems needed to integrate technology into profit logic, which results in fragmented adoption and limited returns. GITTA (2022) underscores that sectoral readiness varies, with ICT infrastructure deficits outside major metros curbing the reach of digital procurement and supplier enablement. Conversely, Radicic et al. (2023) document that where states build competence centres and long-horizon programmes, SME digital maturity rises measurably, implying that South Africa's challenge is less conceptual than institutional.

McKinsey & Company (2022) argue that digital supplier diversity only shifts the participation frontier when procurement processes remove hidden thresholds in pre-qualification and provide targeted ramp-up support. Bertocchi (2022) similarly notes that transparency tools curtail discretion and corruption risk, but they require governance capacity to design rules that are inclusive rather than merely efficient. Karadayi-Usta (2024) points to an upside often neglected in ESD debates: digitalisation can embed environmental and social metrics into sourcing criteria, thus positioning capable SMMEs to win in markets where sustainability is becoming non-negotiable. Taken together, the risks of digitalising ESD (skills exclusion, infrastructural gaps, and governance overload) are mirror images of its opportunities, which means design quality and institutional coordination

determine whether technology narrows or widens the participation gap (World Bank, 2020).

Figure 2 analytically maps the outcome-level benefits of digitalisation, moving from operational improvements (scalability and cost-efficiency) toward strategic gains (global reach and enhanced collaboration). For South African ESD, this progression is significant. The figure suggests that digital adoption first stabilises internal processes (cost reduction and operational efficiency), then strengthens supplier positioning (market expansion), and finally enables ecosystem integration (collaborative value creation). In practical terms, this means that digital ESD should not be introduced as a one-off technological upgrade but as a phased capability-building trajectory. The figure further reveals that collaboration is positioned as an end-point benefit, implying that sustainable ESD requires interconnected digital platforms where SMMEs, corporates, financiers, and regulators operate within shared digital ecosystems. In the South African context, this interpretation directly addresses fragmentation in current ESD practice by illustrating that isolated procurement portals without integrated collaboration tools will not deliver systemic transformation.

The strategic implications that flow from these findings are therefore less about generic advocacy for "more tech" and more about how to structure digital ESD so that SMMEs actually cross the threshold from aspiring vendors to dependable suppliers at scale (UNCTAD, 2020). GIZ (2019) indicates that public investment in

connectivity and interoperable payment rails multiplies private returns from firm-level digital adoption, which is essential if platform fees and data costs are to remain proportionate for small firms. European Commission (2023) suggests that networked support models (combining advisory, testing, and brokerage) accelerate adoption because they translate abstract tools into process change in procurement, quality, and finance. Microsoft (2022) shows that targeted partnerships in townships lift digital literacy and platform access quickly, but the evidence also implies that these efforts must be embedded into sustained supplier pipelines rather than episodic training bursts. Mpinganjira (2021) argues that SMMEs must recast digital adoption as core strategy, integrating e-commerce, data, and automation with route-to-market and working-capital models, because marginal additions rarely survive procurement scrutiny.

NPC (2020) frames this within national development by emphasising that SMMEs' digital readiness is both an inclusion goal and a competitiveness necessity, which justifies policy priority and long-term budgeting. Myres et al. (2024) warn, however, that ecosystem coordination is indispensable, as fragmented programmes create confusion, duplicate effort, and leave firms cycling through pilots without converting gains into contracts. Gauteng Enterprise Propeller (2022) and the Township Economy Partnership Fund (2022) together show that subnational experimentation can generate credible proof-points for inclusive digital market access, but that provincial successes must be codified and scaled to avoid isolated

islands of excellence. IDC (2022) puts forward that capital flows into township economies are not self-executing, because without digital market access, supplier enablement, and analytics-driven procurement, investment can dissipate into short-term liquidity rather than capability formation. Kshetri (2020) ultimately ties these threads together by showing that when information frictions, search costs, and verification risks are reduced through digital tools, buyers expand their supplier frontier and small firms move from peripheral to strategic actors.

Overall, the discussion demonstrates that South Africa's ESD landscape is not short of intent but of alignment between policy, procurement practice, and SMME capability, with digitalisation offering the most credible route to close these gaps if designed for inclusion and scale (DTI, 2019). The literature affirms that technology can convert ESD from a quota-fulfilment obligation into a productivity-enhancing sourcing strategy, but only when infrastructure, skills, finance, and governance are orchestrated to carry small firms across the reliability threshold buyers require (UNDP, 2022). The secondary evidence therefore supports a clear position: digital ESD will improve participation and resilience where programs are embedded in real supply-chain workflows, where public and private investments crowd-in each other, and where SMMEs are equipped to use data and platforms to prove value repeatedly rather than episodically (UNCTAD, 2022).

RECOMMENDATIONS

Based on the findings of this study, a set of strategic recommendations is proposed to strengthen the

digitalisation of ESD in South Africa and to enhance the competitiveness of SMMEs. These recommendations are directed at policymakers, corporates, financial service providers, mobile network operators, and supply chain practitioners, recognising that coordinated action is essential for maximising the developmental impact of digital ESD initiatives.

First, increased investment in digital infrastructure and platforms is imperative to bridge the persistent connectivity and technology gaps that hinder SMME participation in digitally enabled value chains. This includes targeted funding for broadband expansion, cloud-based procurement platforms, and interoperable payment systems that can reduce transaction costs and improve transparency. Such infrastructure should be designed with inclusivity in mind, ensuring that township and rural-based SMMEs are not left behind in the shift towards digital procurement ecosystems.

Second, digital skills development programmes tailored specifically for SMMEs should be prioritised. These programmes must go beyond basic digital literacy to include training in e-commerce integration, tendering through online portals, digital financial management, and data analytics for business growth. Embedding such capacity-building efforts within ESD frameworks will ensure that technology adoption is matched by the human capability needed to leverage it effectively.

Third, enhanced access to markets and funding through digitalisation must be a key outcome of ESD strategies. Financial service providers should digitise their enterprise resource planning systems, incorporating tools

such as AI-driven chatbots to streamline onboarding, vetting, and responses to Requests for Tenders or Requests for Proposals. This will allow SMMEs to respond more quickly and accurately to procurement opportunities, reducing administrative burdens and improving competitiveness.

Fourth, recognising the severe connectivity challenges caused by network instability and loadshedding, particularly in township and rural economies, it is recommended that banks and mobile network operators invest in “spectrum as a service” models for SMMEs. Providing dedicated spectrum access and backup connectivity solutions will mitigate disruptions and enable uninterrupted participation in digital markets. These investments should be coupled with localised infrastructure support, such as alternative power solutions, to counter the effects of ageing grid infrastructure and unplanned maintenance. The economic and social return on such investments is significant, as they will stimulate local job creation, foster youth entrepreneurship, and expand the pool of digitally capable suppliers.

Fifth, capacity building for supply chain practitioners is essential to ensure seamless adoption of ESD digitalisation strategies. Practitioners should undergo targeted training in digital procurement systems, data-driven supplier evaluation, and change management, ensuring they can implement and champion digital transformation initiatives within their organisations. This will also facilitate alignment between digital tools and procurement policies, reducing resistance and accelerating uptake.

Lastly, collaboration between private equity funders and supply chain practitioners should be institutionalised to support ESD digitalisation. Such partnerships can co-develop policies and frameworks that not only enable technology adoption but also secure sustainable funding channels for SMMEs. These policies should explicitly focus on providing business opportunities and finance to high-potential small enterprises, thereby translating digitalisation into measurable growth and inclusion outcomes.

The recommendations emphasise that digitalisation of ESD cannot be approached as a purely technological upgrade; it must be embedded in a broader ecosystem of skills, infrastructure, finance, and governance. By operationalising these measures in an integrated manner, stakeholders can ensure that digital ESD moves beyond compliance to become a genuine driver of inclusive economic development in South Africa.

LIMITATIONS OF THE STUDY

This study is subject to certain limitations that should be acknowledged when interpreting its findings. Firstly, the exclusive reliance on a qualitative, secondary data research design limits the extent to which the conclusions can be generalised to broader contexts. While the qualitative approach allowed for in-depth exploration of digitalisation within ESD, it inherently prioritised depth over breadth. Incorporating quantitative methodologies in future studies could strengthen empirical validity and allow for statistical testing of observed patterns.

Secondly, the analysis primarily focuses on the financial services and ICT sectors, which (although central to digital transformation) do not fully represent the diverse realities of other industries in South Africa. This sector-specific emphasis risks overlooking unique challenges, opportunities, and contextual factors present in manufacturing, agriculture, or other service sectors. Extending the scope to additional industries would enhance representativeness and provide a more holistic understanding of ESD digitalisation dynamics.

Furthermore, the perspectives reflected in this study are predominantly derived from private-sector stakeholders within the South African context. This narrow lens constrains the diversity and depth of insight, particularly with regard to policy frameworks, public-sector interventions, and systemic considerations. Inclusion of public-sector experts, development agencies, and internationally based practitioners in future research would provide comparative perspectives and illuminate cross-border best practices.

Finally, given the emerging nature of ESD digitalisation in South Africa and the limited availability of established theoretical frameworks, this study operates within a relatively uncharted research space. While this offers originality, it also presents challenges in aligning findings with established models. Expanding the geographic and sectoral scope, and grounding future analyses in both local and global contexts, would help build a more robust, transferable, and internationally informed evidence base.

FUTURE RESEARCH

Future research should extend the current inquiry by undertaking quantitative analyses to measure the direct and indirect impacts of digitalisation on SMME growth and development, thereby complementing the qualitative insights generated in this study. Further investigation into the role of digitalisation in enhancing ESD across additional sectors (such as manufacturing, mining, retail, and agriculture) would provide sector-specific evidence to inform targeted interventions. There is also a need to develop and empirically validate comprehensive frameworks for implementing digitalisation within ESD programmes, ensuring scalability and adaptability across diverse economic contexts. Moreover, examining the influence of digitalisation on the long-term sustainability and competitiveness of SMMEs would deepen understanding of its strategic value, particularly in environments marked by resource constraints and market volatility.

THEORETICAL CONTRIBUTIONS

This study makes several important theoretical contributions to the evolving discourse on ESD and digital transformation in emerging economies. First, it advances the literature by explicitly conceptualising the structural intersection between digitalisation and ESD, an area that has previously been treated in fragmented silos. While existing scholarship has examined ESD primarily as a compliance-driven empowerment instrument (Bhengu & Vil-Nkomo, 2022) and digitalisation as a driver of SMME competitiveness

(Mpinganjira, 2021), this study integrates these strands to demonstrate how digital technologies can reconfigure ESD from a quota-based obligation into a performance-oriented supplier integration framework.

Second, the study contributes to theory by positioning digitalised ESD as a systemic supply chain governance mechanism rather than a technological add-on. Drawing from digital transformation and innovation ecosystem perspectives (Radicic et al., 2023; UNCTAD, 2020), the findings demonstrate that technology adoption must be embedded within institutional coordination, procurement architecture, and capability-building pipelines. This shifts theoretical understanding from firm-level digital adoption models towards ecosystem-level digital enablement in supplier development.

Third, the study extends knowledge in the South African and broader African context by identifying the digital divide as a structural moderator of ESD effectiveness. By demonstrating how infrastructure deficits, skills gaps, and governance weaknesses shape the outcomes of digital integration, the research adds contextual depth to global digitalisation theories that are often grounded in developed-economy settings. In doing so, it contributes to emerging market scholarship by framing digitalised ESD as both an inclusion mechanism and a competitiveness strategy.

PRACTICAL CONTRIBUTIONS

Practically, this study offers actionable guidance for multiple stakeholders operating within the digital ESD ecosystem. For policymakers, the findings provide a structured rationale for embedding digital infrastructure

investment, platform interoperability, and SMME-focused digital capability development within national enterprise development strategies. By linking digital readiness directly to supplier participation and economic resilience, the study supports evidence-based policy prioritisation.

For corporates, the research demonstrates that digitising procurement systems, onboarding processes, and supplier performance monitoring can reduce transaction friction while expanding supplier diversity. The findings suggest that corporates should move beyond compliance-based ESD scoring towards digitally integrated supplier development pipelines that emphasise scalability, transparency, and measurable performance outcomes.

For SMMEs, the study clarifies that digital transformation must be embedded within core business strategy rather than adopted as a peripheral tool. By integrating e-commerce platforms, cloud-based systems, data analytics, and digital financial management into operational models, SMMEs can strengthen credibility, reduce information asymmetry, and improve their positioning within corporate value chains.

Collectively, these contributions demonstrate that digitalised ESD is not merely a technological reform but a strategic reconfiguration of supplier development architecture. By bridging theory and practice, this study enhances both scholarly understanding and policy relevance, reinforcing the argument that coordinated digital integration is essential for inclusive and sustainable SMME growth in South Africa.

CONCLUSION

This study affirms that digitalisation of ESD is a pivotal solution to the persistent challenges faced by SMMEs, particularly those operating within township and rural economies in South Africa. These SMMEs often struggle with limited market access, inadequate infrastructure, and skills gaps, which restrict their ability to grow and compete in mainstream supply chains. By embedding digital technologies such as cloud-based procurement platforms, e-commerce solutions, IoT (Internet of Things) and data analytics into ESD frameworks, SMMEs can overcome geographical and operational barriers, access broader markets, and build resilience against economic shocks.

For policymakers, especially the Department of Trade and Industry, digitalised ESD offers a strategic lever to incentivise inclusive economic participation. Through a targeted investment in digital infrastructure, tailored skills development programmes, and the creation of interoperable digital platforms, both the private and the public sectors can enable SMMEs to transition from survivalist operations to growth-oriented enterprises. Such interventions not only bridge the digital divide but also foster sustainable job creation, youth entrepreneurship, and supplier diversity key priorities for South Africa's economic transformation agenda.

Ultimately, the significance of digitalised ESD lies in its capacity to transform compliance-driven supplier development into a dynamic engine for innovation, equity, and competitiveness. The "so what" of this research is clear: without a

coordinated, digital-first approach to ESD, township and rural SMMEs will remain excluded from the opportunities of the digital economy in South Africa. Business stakeholders must act decisively to operationalise these recommendations especially in the ICT and Financial services sectors, ensuring that digitalisation becomes both a catalyst and a condition for the future viability and growth of South Africa's SMMEs.

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DECLARATION OF CONFLICT

The authors affirm that they have no financial interests or personal relationships that could have influenced the research presented in this paper.

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