

**African languages in the digital AI era:
Reimagining communication, access, policy, and participation**

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Abstract

Language remains a central marker of identity, culture, and power in South Africa, and in the digital and AI era, longstanding debates about linguistic inclusion and equity have intensified. Although the Constitution affirms multilingualism, English continues to dominate institutional and technological domains, thereby limiting the visibility, accessibility, and functionality of African languages. This study examines the integration, representation, and transformation of African languages within digital and AI-mediated environments in South Africa. Using a systematic literature review guided by PRISMA and a Virtual Linguistic Landscape (VLL) approach, the study synthesises recent scholarship, policy documents, and digital language initiatives to assess current developments. The review analyses emerging digital tools, online linguistic resources, and the evolving roles of African languages in education, governance, and public communication. The VLL method further illustrates how African languages circulate and acquire symbolic presence across selected digital spaces. Findings indicate a steady growth in digitisation efforts, the expansion of language technology projects, and increased institutional attention to linguistic diversity. However, progress remains uneven across languages, with persistent gaps in funding, standardisation, and technological capacity. Overall, the study demonstrates that while digital platforms and AI systems offer significant opportunities to advance linguistic justice, meaningful transformation requires sustained policy commitment and long-term investment of resources.

Keywords: African languages; digital communication; AI; linguistic justice; South Africa

Introduction

Language remains a central marker of identity, culture, and power in South Africa's socio-digital landscape. Although the Constitution affirms twelve official languages, everyday practice reflects a much narrower linguistic reality, with English dominating government, higher education, and increasingly the digital sphere. This dominance echoes Neville Alexander's (2003) argument that South Africa's multilingual ideal remains more symbolic than substantive. As digital technologies and AI systems become integral to public communication, learning, and access to information,



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they often embed existing hierarchies by privileging globally dominant languages (Salawu, 2006). This uneven linguistic presence significantly shapes who is included and who is excluded from digital participation, reinforcing broader socio-economic inequalities. Loth (2016). The ability or inability to engage online in one's own language is increasingly a determinant of citizenship, epistemic access, and meaningful participation in the digital age.

The rapid expansion of AI-driven communication tools, online learning platforms, and data-intensive technologies presents both emancipatory possibilities and renewed forms of domination for African languages. From a decolonial perspective, digital technologies are not neutral infrastructures but sites of epistemic struggle in which historically entrenched hierarchies of language and knowledge are either challenged or reproduced (Ngũgĩ wa Thiong'o, 2018; Salawu, 2006) argument that language is central to the decolonisation of the mind remains particularly salient in digital contexts, where computational visibility increasingly determines whose knowledge counts and whose languages are rendered usable, searchable, and governable (Ngũgĩ wa Thiong'o, 1986: 4-6). The marginalisation of African languages within AI systems thus constitutes a contemporary form of epistemic exclusion, in which languages lacking digital resources are systematically erased from emerging knowledge economies.

African decolonial scholars such as Ndlovu-Gatsheni emphasise that coloniality persists through global systems of knowledge production long after formal colonial rule ended (Ndlovu-Gatsheni, 2013: 10-12; 2018: 1-3). Applied to AI and digital infrastructures, this insight reveals how dominant languages - particularly English - are structurally privileged through unequal access to data, research funding, and technological design. Political economy perspectives further underscore that AI development is shaped by global market logics and institutional arrangements that continue to reflect colonial legacies of governance and control, particularly through bifurcated systems of inclusion and exclusion inherited from colonial rule (Timcke, et al., 2024)

While AI-enabled translation tools, speech technologies, and online learning platforms offer possibilities for linguistic revitalisation and expanded communicative reach, these potentials remain unrealised without deliberate intervention (Salawu, 2018). As Khumalo and Nkomo (2022) argue, linguistic justice in the digital era requires proactive digitisation, corpus development, and terminology innovation—not as neutral technical exercises, but as deliberate political and epistemic projects. Global Governance Africa similarly insists that technology 'must speak African languages' if it is to disrupt, rather than reproduce, colonial patterns of exclusion (Global Governance Africa, 2025: 7). Taken together, these perspectives underscore that digital and AI spaces are deeply political terrains shaped by historical inequality, epistemic hierarchy, and struggles over linguistic authority.

Education remains a particularly contested terrain where the promises and contradictions of multilingualism are sharply felt. Batyi (2019) demonstrates how multilingual glossaries can support student comprehension and epistemic access, while Dyers and Masubelele (2020) highlight the challenges of achieving genuine inclusivity in multilingual higher education spaces. Yet policy-to-practice gaps persist. Cele (2021) describe how universities often celebrate

multilingualism rhetorically but fail to operationalise it meaningfully in teaching and learning. Emsley and Modiba (2024) further contend that institutional multilingualism remains largely a “fallacy,” sustained by limited investment, capacity constraints, and uneven political will. Despite these structural challenges, recent pedagogical innovations signal new possibilities: Adedokun, et al. (2024) show how technology-enhanced teaching approaches can strengthen African language pedagogy when grounded in sociocultural realities.

Beyond the education sector, digital tools are also reshaping how indigenous knowledge and cultural memory are preserved. Adefila, et al. (2024) illustrate how digital twin technologies create novel opportunities to document and revitalise Indigenous Knowledge Systems in ways that respond to the pressures of contemporary digital disruption. These emerging models align with broader calls from Kaschula and Wolff (2016) for holistic, context-sensitive approaches that integrate policy, pedagogy, and digital innovation to support the intellectualisation of African languages.

Despite these promising developments, African language digitisation remains uneven, fragmented, and shaped by competing institutional priorities, market dynamics, and historical inequalities. As AI tools become embedded in everyday communication, public institutions, and knowledge production, the stakes of linguistic visibility and invisibility intensify. The future of African languages is increasingly linked to their presence in digital infrastructures, their representation in AI models, and the policy frameworks that govern the adoption of technology.

Within this context, this chapter examines how African languages are being integrated, supported, and shaped within South Africa's evolving digital AI landscape. The guiding research question is:

How do current digital, educational, and AI-driven developments influence the visibility, use, and future of African languages in South Africa, and what does this mean for access, policy, and meaningful participation?

This question frames a critical inquiry into both emerging opportunities and the persistent structural barriers that shape linguistic justice in the digital age.

Methodology

This study adopted a qualitative research design combining a systematic review, document analysis, and virtual linguistic landscape (VLL) methods to investigate how African languages are represented, supported, and operationalised within South Africa's higher education digital–AI ecosystem. The systematic review followed established qualitative review protocols, drawing on peer-reviewed articles, book chapters, policy documents, and conference papers published between 2015 and 2025. Searches were conducted across Scopus, Web of Science, JSTOR, Sabinet, SciELO, and Google Scholar using terms such as African languages, digital communication, multilingualism, AI, higher education, and language policy. Search terms

included *African languages, multilingualism, digital communication, artificial intelligence, higher education, and language policy*.

Furthermore, database searches were conducted using Boolean operators to combine keywords effectively. The operators AND, OR, and NOT were applied to refine search results: AND was used to narrow results by including multiple concepts simultaneously (e.g., “African languages AND digital technology”) OR broadened the search to include synonyms or related terms (e.g., “multilingual OR plurilingual”), and NOT excluded irrelevant terms (e.g., “digital NOT gaming”). This approach ensured a systematic and comprehensive retrieval of literature aligned with the study’s focus. After screening 312 records, 57 sources were retained.

Inclusion criteria centred on relevance to African languages in digital or AI-mediated contexts, with a focus on South Africa. Sources lacking empirical grounding or conceptual relevance were excluded, and the selection process was documented using a PRISMA framework. Complementing the review, document analysis examined national language policies, university multilingualism strategies, digital transformation plans, and AI-related policy frameworks. Through surface, interpretive, and comparative readings, the analysis explored how these documents articulate linguistic inclusion, multilingualism, and the institutional responsibilities surrounding African language digitisation.

To capture how African languages appear in contemporary digital communication environments, the study employed a virtual linguistic landscape (VLL) approach, which extends traditional linguistic landscape research to online spaces. Data included university websites, learning management systems, institutional social media platforms, and public-facing digital interfaces where language hierarchies become visible. Screenshots and interface captures were analysed to determine the availability of African languages, the visibility of multilingual content, and the presence or absence of AI-mediated language features such as translation and speech-to-text tools. All data from the systematic review, document analysis, and VLL were synthesised using thematic analysis informed by African sociolinguistics and digital language studies. This triangulated methodology provided a holistic, multi-layered understanding of linguistic visibility and power in South Africa’s digital–AI landscape, enabling the study to trace the intersection of policy, practice, and socio-technical infrastructures shaping the future of African languages.

Document analysis focused on 16 purposively selected national and institutional texts, including the *Constitution of the Republic of South Africa* (1996), *Language in Education Policy* (1997), *Language Policy for Higher Education* (2002, revised 2020), the *White Paper for Post-School Education and Training* (2013), *MTbBE Policy Framework* (2021), the *BELA Act* (2023/2024), and AI/4IR policy frameworks. Institutional documents included language policies and digital strategies from eight public universities chosen for diversity in history, location, and multilingual commitment. The analysis examined how linguistic inclusion, support for African languages, and digital policy are framed across levels of governance.

VLL, or non-physical linguistic landscape, extends traditional LL research into cyberspace, capturing language use in digital environments such as websites, learning management systems, and social media (Carr, 2019; Ivkovic & Lotherington, 2009). African scholarship demonstrates

that university digital platforms often privilege dominant languages, marginalising indigenous African languages and reflecting structural power asymmetries (Maseko & Siziba, 2023). Cyberspace functions as an extension of physical space (Wang, 2020), allowing languages to be repositioned in ways that may diverge from real-world hierarchies (Ivkovic & Lotherington, 2009). Screenshots and interface captures were analysed to assess the presence, visibility, and hierarchy of language, as well as AI-mediated tools such as translation and speech-to-text. Data from the systematic review, document analysis, and VLL were synthesised through thematic analysis informed by African sociolinguistics, language policy studies, and critical digital scholarship.

Triangulation enabled the identification of patterns of inclusion, exclusion, and power, highlighting tensions between policy discourse and digital practice. While the study focused on eight universities and publicly accessible digital spaces, limiting generalisability, this multi-method approach provides robust insights into the intersection of policy, digital infrastructures, and African language visibility in higher education.

PRISMA and data summary

The selection of sources for the systematic review was guided by the PRISMA framework, ensuring a transparent and replicable process. Initial searches across Scopus, Web of Science, JSTOR, Sabinet, SciELO, and Google Scholar returned 312 studies. After removing duplicates and screening titles and abstracts for relevance, 102 full-text articles, book chapters, and policy documents were assessed for eligibility. Of these, 57 sources met the inclusion criteria, comprising 35 journal articles, 12 book chapters, and 10 policy or institutional documents. The studies were published between 2015 and 2025, with a concentration in 2020–2024, reflecting increased attention to African language digitisation and digital learning during this period. Geographically, the majority focused on South Africa, with a few comparative studies from other African contexts. The final sample was then analysed using thematic coding and triangulated with document analysis and virtual linguistic landscape observations to identify patterns in policy implementation, digital language visibility, and AI-mediated linguistic practices.

Language policy in South Africa: Constitutional foundations, policy evolution

South Africa's language policy framework is grounded in a historical landscape marked by entrenched linguistic inequality. Under apartheid, English and Afrikaans functioned as the primary languages of power, administration, and formal education, while African languages were systematically marginalised and confined to inferiorised social and institutional domains. The democratic transition of 1994 marked a fundamental reorientation toward linguistic equity, culminating in the adoption of the 1996 Constitution, which reimagined South Africa's linguistic order. Section 6 recognises eleven official languages and mandates the state to 'take practical and positive measures to elevate the status and advance the use' of historically marginalised languages (Constitution of the Republic of South Africa, 1996). Through this provision, multilingualism is positioned not merely as a symbolic democratic ideal but as a binding constitutional obligation.

To operationalise Section 6, Parliament enacted the Pan South African Language Board Act 59 of 1995, establishing PanSALB as the statutory body tasked with promoting, developing, and protecting official languages, as well as Khoi, Nama, San, and South African Sign Language. The Act aligns closely with the Constitution's developmental mandate by prioritising terminology development, corpus building, monitoring of linguistic rights, and advocacy (PanSALB Act 59 of 1995). Although PanSALB has faced periodic criticism related to funding and institutional capacity, it remains the central custodian of linguistic equity in the democratic era.

In the basic education sector, the Language-in-Education Policy (LiEP) of 1997 represents the most significant post-apartheid intervention. The LiEP endorses additive bilingualism and affirms the cognitive and educational benefits of mother-tongue instruction, allowing learners to receive education in the language of their choice where 'reasonably practicable' (Department of Education, 1997). This framework has recently been reinforced by the promotion of Mother Tongue-Based Bilingual Education (MTBBE), which emphasises learners' home languages as the foundation for learning while gradually introducing additional languages, particularly English. These provisions are anchored in Section 29(2) of the Constitution, which guarantees access to education in one's preferred official language, subject to feasibility. Further policy support is provided by the Basic Education Laws Amendment (BELA) Act 32 of 2024, which strengthens governance and accountability mechanisms around school language policies by increasing the oversight role of provincial education authorities. While the Act aims to ensure greater consistency and redress in policy implementation, it has also sparked debate about the balance among state authority, school-level autonomy, and the practical realisation of multilingual education. Supported by the Norms and Standards for Language Policy in Public Schools, the LiEP and subsequent policy developments sought to redress apartheid-era injustices by promoting African languages as languages of learning and teaching (LoLT). Yet implementation has remained uneven, and several studies highlight the continued entrenchment of English as the de facto LoLT across many schools (Heugh, 2018; Webb & Kembo-Sure, 2020).

In the higher-education sector, multilingual transformation gained renewed momentum with the publication of the Language Policy Framework for Public Higher Education Institutions (Department of Higher Education and Training, 2020). The framework obliges universities to adopt institutional language policies that support African languages not only as symbolic markers of identity but as languages of scholarship, administration, teaching, and research. It further emphasises the development of corpora, terminology, translation services, and digital linguistic resources, which have become increasingly critical with the rise of artificial intelligence and natural-language technologies (Cele, 2021). The 2020 framework thus represents the first system-wide attempt to translate multilingualism into substantive institutional practice in higher education.

Judicial interpretation has played a decisive role in defining the scope and limits of constitutional language rights. Section 29(2) has been at the centre of landmark cases concerning language policies in universities and public schools. In *University of the Free State v Afriforum* (2017), the Constitutional Court held that while Section 29(2) guarantees the right to education

in a chosen official language, universities must balance this with inclusivity, redress, and resource constraints. The Court upheld UFS's shift to English-dominant instruction as reasonable and constitutionally compliant, emphasising that language rights cannot be removed arbitrarily and must be justified. In *Chairperson of the Council of the University of South Africa v Afriforum* (2021), UNISA's blanket removal of Afrikaans was found unlawful. The Court stressed that while universities may adjust language policies, complete exclusion of an established language requires strong justification, highlighting the need for reasonableness, proportionality, and practicability. Together, these cases show that language policy in higher education must balance constitutional rights with institutional realities, favouring incremental, context-sensitive changes over outright prohibitions. These judgments affirmed that language rights are not absolute: they must be balanced with transformation imperatives and institutional capacity. Importantly, they clarified that the Constitution does not entrench fixed language arrangements; instead, it requires institutions to pursue inclusivity in context-sensitive ways.

Recent policy debates have continued to shape the national language landscape. Discussions surrounding the Basic Education Laws Amendment (BELA) Act 2024 have revived public scrutiny of how language policies are interpreted and implemented in schools. Although the Act primarily addresses governance issues, public submissions have underscored persistent tensions between community preferences, demographic changes, and the imperative to broaden access to African-language instruction (Republic of South Africa, 2024). Concurrently, national bodies such as PanSALB and SADiLaR have intensified efforts in terminology development, digitisation, and the localisation of digital resources, reflecting a growing recognition that contemporary language policy must extend beyond traditional print-based domains to encompass digital infrastructure and emerging AI language technologies (SADiLaR, 2025).

Overall, the evolution of South Africa's language policy framework reveals a coherent trajectory: constitutional recognition of linguistic diversity; statutory and policy instruments designed to operationalise multilingualism; and judicial interventions that interpret these commitments in real institutional contexts. Yet a persistent gap remains between policy intent and practical implementation. Scholars such as Cele (2021), Foley (2004), Maseko and Siziba (2023), Munyaradzi (2024), and Nudelman (2015) emphasise that meaningful progress depends on sustained investment in teacher development, corpus and terminology work, digital linguistic tools, and AI-aligned language technologies. As South Africa enters an era shaped by AI-driven communication and digital governance, the effective alignment of policy, practice, and technological infrastructure will ultimately determine whether multilingualism becomes a tangible, accessible reality or remains primarily an aspirational ideal.

Closing these gaps requires investment in digital infrastructure, AI tools for African languages, and coordinated policy–technology integration to ensure that African languages become visible, functional, and accessible in digital and AI-mediated higher education, supporting communication, participation, and linguistic equity.

Language technology and localisation

The creation of digital tools, speech corpora, and translation systems is central to ensuring that African languages are not confined to peripheral cultural expression but are integrated into the digital infrastructures of knowledge, commerce, and governance (Anyawuike & Ruth, 2024). As Prah observed, the future of African linguistic empowerment depends on whether African languages 'become part of the tools of science, research, and technology' (Prah, 2017). Human Language Technology (HLT) provides the backbone of linguistic integration by enabling machines to recognise, interpret, process, and generate human language in spoken, written, and signed forms (Rivera, et al., 2017). These technologies include spell checkers, grammatical analysers, morphological tools, speech recognition, machine translation engines, and natural-language understanding systems that allow users to communicate digitally in their preferred language (Mlambo & Matfunjwa, 2024; Roux & Ndinga-Koumba-Binza, 2019). Agbeyangi and Jere (2024) emphasise that HLT is a computational field that integrates linguistics, engineering, and computer science to develop technologies capable of analysing and generating natural language. In a multilingual society such as South Africa, these tools are essential for supporting language teachers, translators, public communicators, students, and ordinary speakers who interact daily with digital systems (Agbeyangi & Jere, 2024).

The development of HLT in South Africa has deep historical roots. In the early 1990s, during the country's transition to democracy, Parliament recognised the need to establish a language technology infrastructure to support the vision of a multilingual state (Roux & Street, 2001). This resulted in the establishment of national initiatives to develop corpora, dictionaries, orthographic standards, and language resources across all official languages (Roux & Street, 2001). Over time, institutions such as the Centre for Text Technology (CTeXt), the Meraka Institute, and later the South African Centre for Digital Language Resources (SADiLaR) have continued this work by creating open-source corpora, text-processing tools, digital dictionaries, and natural-language datasets essential for AI and language-processing research (Eiselen & Puttkammer, 2014). Recent initiatives include Mozilla Common Voice South Africa Amiri (2025). Furthermore, SADiLaR's multilingual resource programmes demonstrate growing efforts to address this technological gap. De Wet, et al. (2022) highlight the localisation of speech datasets for isiZulu, isiXhosa, Setswana, and Sepedi, noting that the scarcity of high-quality speech data limits the accuracy of voice-recognition systems. Without adequate corpora, African-language speakers remain digitally invisible to automated systems such as voice assistants, translation tools, and chatbots that are trained mainly on English-dominant datasets.

Recent scholarship, including Mkhwanazi's (2024) work on teaching South African languages through technology, highlights how digital tools and HLT-based platforms support language learning, pedagogical innovation, and literacy development. These efforts demonstrate how HLT contributes not only to computational access but also to language acquisition, digital pedagogy, and classroom resource creation. SADiLaR's initiatives, such as corpus development projects, lexicography modernisation, and training programmes for digital humanities scholars, further position South Africa as a continental leader in HLT development (Hennelly, et al., 2022).

This institutional ecosystem ensures that African languages participate meaningfully in digital-AI spaces, rather than being technologically marginalised.

SADiLaR, working with universities such as North-West University and the University of Pretoria, has produced multilingual terminology databases across domains, including law, health, and information technology (Hennelly, et al., 2022). These resources enhance the accuracy and coherence of localised software interfaces, digital learning platforms, and professional communication. As Maseko and Siziba (2023) note, the development of subject-specific terminologies 'bridges the gap between linguistic recognition and intellectual participation', enabling students and professionals to access digital knowledge in their mother tongues.

Tools such as machine translation systems, spell checkers, grammar checkers, and digital language-learning platforms highlight how research institutions and universities have expanded linguistic technologies beyond basic infrastructure toward broader applications in communication, education, and digital participation. This growth is now reinforced by a new wave of African-led initiatives reshaping the field. Projects such as Masakhane, Misra (2025), Mozilla Common Voice, De Wet, et al. (2022), Lelapa AI, EqualyzAI (Magodo-Matimba (2025) and the Gates-funded African Next Voices. Fogarty, et al. (2020) and Burgos (2025) project have significantly expanded open-source datasets and community-driven language resources (Marivate, et al., 2025). In South Africa, DSFSI's extensive recordings of seven official languages further strengthen this momentum, supported by networks of scholars, linguists, technologists, and community volunteers committed to linguistic justice and inclusive AI development (Somasundaram et al., 2025).

Together, these initiatives demonstrate that sustainable African-language AI must be built in partnership with local experts, teachers, linguists, and communities. AI systems that fail to meaningfully incorporate African languages risk reinforcing digital exclusion and widening socio-economic inequalities (Dlamini & Ndzinisa, 2025; Makananise, 2024). Conversely, AI that is grounded in African linguistic realities has the potential to enhance education, expand access to information, improve service delivery, and preserve cultural and linguistic heritage (Swargiary, 2024). Ensuring that African languages are fully present in the age of AI is not simply a technological aspiration—it is an imperative for equity, participation, and the future of knowledge in the digital era (Gwagwa, et al., 2020).

In sum, language technology and localisation form the operational foundation of linguistic justice in the digital-AI era. Without investment in multilingual digital infrastructure – speech corpora, translation systems, natural language tools, and culturally informed design – African languages risk digital extinction, even as they thrive in social media discourse. South Africa's emerging models, particularly those driven by SADiLaR and university-based collaborations, signal a hopeful trajectory: one in which digitalisation and decolonisation converge to produce technologies that speak, listen, and think in African languages.

Institutional adoption and community mobilisation in multilingual digital transformation

Institutional adoption remains uneven, shaped by disparities in funding, infrastructure, and political will. While some universities have begun to embed multilingual digital practices into their learning management systems, others struggle to move beyond policy statements due to limited technological capacity or insufficient language-support staffing (Mlambo & Matfunjwa, 2024). Maseko (2023) notes that multilingual digital transformation often falters at the implementation stage, where the absence of dedicated language technologists and inadequate investments in digital corpora restrict institutional progress. This challenge is evident in historically disadvantaged universities, many of which face the double burden of addressing infrastructure backlogs while attempting to innovate in multilingual digital pedagogy (Ndebele, 2022).

A persistent gap also lies in the articulation between national policy frameworks and the technological ecosystems required to support them (Cele, 2021). Although the Language Policy Framework for Higher Education provides direction, it does not fully address the digital infrastructures platform localisation, interface design, or automated translation tools necessary for meaningful implementation. As Mlambo and Matfunjwa (2024) argue, policy without digital capacity risks reproducing symbolic multilingualism: African languages appear in institutional documents but remain marginal in teaching, administration, and online communication. In this sense, multilingual digital transformation is as much a question of institutional planning and resource allocation as it is one of linguistic justice.

At the community level, digital mobilisation continues to expose the limitations of top-down approaches (Maseko & Siziba, 2023). While institutional policies tend to formalise multilingualism, community-driven initiatives highlight the lived realities of language use and the need for flexible, culturally grounded innovation. For instance, youth-led digital activism on TikTok, WhatsApp, and community radio podcasts has expanded African-language digital presence far beyond what formal institutions have achieved (Malatji & Lesame, 2019). These platforms host language revitalisation campaigns, user-created dictionaries, and grassroots translation groups that provide real-time multilingual support during public crises. As Malatji & Lesame observes, such bottom-up digital participation reveals that 'African languages thrive digitally when communities claim technological space for themselves', suggesting that institutional models must increasingly integrate community expertise, not merely consult it (Malatji & Lesame, 2019:76-95).

Despite these promising developments, institutional adoption remains uneven. While some universities and government units have invested in multilingual digital transformation, others continue to operate primarily through English due to resource constraints, limited technical expertise, or concerns about scalability. Scholars such as Baleni (2025), Jacobs (2025), and Makoni and Severo (2022) caution that, without sustained funding for training, corpora, and localisation, institutions may reproduce "symbolic multilingualism," publicly affirming diversity while maintaining monolingual operational routines. This is particularly evident in university digital

systems that offer African languages as interface choices but retain English as the underlying language of instruction, assessment, and administrative communication.

Community mobilisation counterbalances these institutional challenges. Grassroots projects have demonstrated an agility that institutions often lack. For example, local radio stations in isiZulu, Sesotho, Setswana, and Tshivenda increasingly integrate social media platforms, WhatsApp groups, and AI-assisted tools to expand linguistic reach (Malatji & Lesame, 2019; Molale & Motsamai, 2025; Ligidima & Makananise, 2020). Informal online learning communities such as isiXhosa writers' groups on Facebook or Sesotho poetry circles on TikTok illustrate the vibrancy of African-language digital creativity beyond formal structures (Mbinjama, 2013). Prah's (2017) call for 'language empowerment from below' is evident in these practices, where ordinary users play central roles in driving digital multilingualism.

A key insight emerging from African scholarship is that institutional adoption and community mobilisation are mutually reinforcing; Antia and Van Der Merwe (2019) note that university-based language projects thrive when community voices shape the data, corpora, and pedagogical content. Likewise, Kaschula (2016) argues that community-generated linguistic resources offer authentic material for digital localisation, enhancing the cultural accuracy of technologies. This reciprocity suggests that sustainable multilingual digital transformation requires rethinking the boundaries between institutional authority and community expertise.

Finally, the emerging collaboration between universities, government departments, and community networks signals a promising direction for multilingual digital transformation. Joint projects such as the SADiLaR Living Labs, PanSALB-supported terminology workshops, and university–community NLP datasets demonstrate that sustainable multilingual digital ecosystems require shared responsibility across sectors. Community members contribute linguistic knowledge; universities provide research capacity; and government agencies offer policy and infrastructural support. Kaschula (2016) argues that this triangulated model is essential for linguistic equity in the digital age, as it ensures that African languages are not only recognised but actively operationalised within the technologies that structure contemporary life. In this way, institutional adoption and community mobilisation together form the backbone of South Africa's evolving multilingual digital landscape, illustrating how policy, technology, and lived linguistic practice converge to shape the future of African languages in digital spaces.

While many universities have begun integrating African languages into learning management systems, terminology development, and digital communication, the extent and depth of implementation vary considerably. Institutions with strong language-technology partnerships, particularly those linked to SADiLaR, show more advanced initiatives in corpus building and terminology digitisation. However, sector-wide challenges persist, including limited speech-technology resources, English-dominant digital infrastructures, and insufficient capacity for ongoing localisation. These patterns suggest that sustained investment, cross-institutional collaboration, and community-led approaches will be critical for realising the multilingual vision articulated in national policy frameworks.

Digital divide and linguistic inequality

The digital transformation of South Africa's communicative landscape continues to widen existing structural inequalities, particularly along linguistic, socioeconomic, and geographic lines (Makananise, 2024). While digital platforms offer unprecedented opportunities for multilingual expression, innovation, and community formation, access to digital resources remains unevenly distributed. As a result, not all linguistic communities benefit equally from the affordances of digital communication, reinforcing patterns of marginalisation that echo the colonial and apartheid-era stratification of languages (Bamgboṣe, 2000). The interplay between digital exclusion and linguistic inequality is therefore central to understanding the broader implications of digital communication in South Africa, particularly within the wider digital AI transition discussed in previous sections.

One of the most significant dimensions of this divide is differential access to infrastructure. Despite national commitments to universal connectivity, the high cost of data, uneven broadband coverage, and disparities in device ownership continue to limit participation for many rural, township, and low-income communities. Scholars such as Makananise (2024), Kajee and Balfour (2011), Ndlovu and Makalela (2021), Schneider (2022), and the Research ICT Africa network consistently demonstrate that digital access remains stratified by class, race, geography, and linguistic community. These material barriers have direct linguistic consequences: speakers of African languages, especially those in under-resourced regions, have fewer opportunities to produce content, participate in digital discourses, or shape emerging linguistic norms online.

Language technology development further exacerbates these inequalities. While English enjoys extensive digital infrastructure, including predictive text systems, auto-correction tools, speech-to-text applications, and large corpora, many African languages remain underrepresented or absent in mainstream digital tools. African scholars such as Deumert (2010), Block (2013), Hunter and Hachim (2012), Ndimande-Hlongwa and Mkhize (2020), and Tshotsho (2021) highlight the limited availability of localisation resources, linguistic datasets, and Natural Language Processing (NLP) tools for Indigenous languages. As shown in the previous section, although some universities have begun piloting AI-assisted translation and developing digital corpora, such innovations remain fragmented and insufficient to redress what Bamgboṣe (2011) terms “systematic linguistic exclusion.”

The digital divide also interacts critically with literacy and education. Many young people and adults navigate rich multilingual realities offline, yet face predominantly monolingual (English-dominated) digital environments online (Kajee & Balfour, 2011). Scholars such as Makalela (2015,2019), and Hunter and Hachimi (2012) note that English's entrenched role as the primary language of schooling and assessment empowers English-literate users to navigate digital spaces, access information, and engage in online civic life. Conversely, individuals with stronger literacy in African languages but limited English proficiency face digital barriers that limit their participation and visibility (Fuchs & Horak, 2008; Parmegiani & Wildsmith-Cromarty, 2022). This dynamic directly links back to the multilingual policy–practice gap discussed earlier, in which

the dominance of English in digital education tools, including learning management systems, continues to reinforce linguistic hierarchies.

Furthermore, social media algorithms designed primarily for global, high-resource languages frequently amplify English content while deprioritising African-language posts (Malatji, 2019). Recent research by Hollington and Nassenstein (2018), and Solo-Anaeto and Jacobs (2015) show that African-language content is less likely to be indexed, recommended, or monetised, making it harder for creators working in isiXhosa, isiZulu, Sesotho, Setswana, and others to gain traction (Malatji, 2019). This algorithmic marginalisation mirrors what Salawu (2006) calls “epistemic erasure,” where linguistic forms associated with historically oppressed groups receive less visibility, authority, and legitimacy. Thus, digital platforms not only reproduce linguistic hierarchies but technologically automate them, reinforcing the very patterns that multilingual digital transformation initiatives seek to disrupt (Malatji, 2019).

The implications extend beyond cultural visibility to democratic participation. Government communication, including public health messages, judicial notices, educational resources, and civic information, remains heavily English-based despite constitutional and policy mandates for multilingualism. Scholars such as Maseko (2024), Anthonio (2022), and Bussiek (2022) argue that limited African-language digital services hinder meaningful access to state information, thereby constraining citizens’ ability to exercise their rights, participate in governance, and engage with public institutions. Although the Constitutional Court affirms linguistic inclusion as a democratic imperative, digital communication practices still fail to reflect these legal principles.

Finally, the divide is also cultural and symbolic. Even when speakers of African languages access digital tools, linguistic inequality may persist through stigma, linguistic insecurity, and internalised hierarchies. As Probyn (2018) and Loth (2016) observe, some users avoid posting in African languages for fear that their linguistic choices will be perceived as uneducated or informal. This phenomenon, which Djité (2008) describes as linguistic self-censorship”, limits linguistic diversity online and perpetuates symbolic violence, further entrenching the dominance of English as the language of prestige in digital spaces.

Together, these factors indicate that digital inequality in South Africa is inseparable from linguistic disparities. Without deliberate and sustained intervention through infrastructure expansion, investment in African language technology, strengthened policy enforcement, and the adoption of sociolinguistic justice frameworks, the digital landscape risks deepening rather than transforming the linguistic hierarchies that have shaped South Africa’s social order for generations.

Conclusion and recommendations

Conclusion

South Africa’s digital and AI-driven transformation is unfolding within a deeply multilingual society marked by historical inequalities, rapid technological innovation, and shifting linguistic identities. This chapter has demonstrated that African languages occupy a complex position in the digital era: they are simultaneously sites of creativity, activism, and cultural affirmation, yet

remain vulnerable to exclusion due to infrastructural disparities, algorithmic biases, and institutional inertia.

Across the discussions, three overarching insights emerge. First, digital and AI technologies are reshaping linguistic practices in ways that both enhance visibility and reproduce existing inequalities. Second, structural and institutional constraints continue to mediate access to digital resources for African language communities. Third, the sustainable inclusion of African languages in AI ecosystems requires deliberate policy intervention, ethical technological design, and sustained collaboration between communities, researchers, and the state.

First, policy frameworks such as the Constitution, the Use of Official Languages Act (2012), and the Language Policy Framework for Higher Education (2020) articulate firm commitments to multilingualism. However, actual implementation remains uneven, revealing a persistent gap between policy vision and lived digital practice. Institutions and communities are only beginning to translate these commitments into sustainable digital infrastructures, terminology development, and multilingual platforms. Second, digital communication practices, particularly on social media, illustrate the vibrancy of South Africa's multilingualism. Urban youth, influencers, students, and online communities use hybrid, fluid, and creative linguistic repertoires that challenge traditional boundaries and democratise linguistic authority. These practices reveal how African languages are not static or peripheral but central to identity-making, humour, critique, and urban belonging. Yet this creativity does not automatically result in linguistic equity: structural hierarchies continue to privilege English in domains of power, visibility, and technological support. Third, the digital divide remains a central determinant of linguistic inequality. Unequal access to data, devices, broadband, and language technologies restricts participation for many African-language speakers, especially in rural and township communities. This divide is material, technological, and symbolic, intersecting with literacy patterns, algorithmic design, and persistent language ideologies. Without addressing these systemic inequalities, digital transformation risks reinforcing the very hierarchies it seeks to dismantle.

Collectively, these insights indicate that while South Africa has made meaningful strides toward multilingual digital transformation, significant intervention is required across policy, institutions, technology development, and sociocultural domains. Ensuring linguistic justice in the digital–AI era demands coordinated efforts that centre African languages not as optional additions but as foundational to equitable digital futures.

Recommendations

South Africa's multilingual digital transformation requires stronger and more coordinated implementation of existing language policies across government, higher education, and public institutions. Enforceable implementation plans aligned with the Use of Official Languages Act and the Higher Education Language Policy Framework should be developed and supported by monitoring mechanisms that track multilingual provision in digital services, including websites, e-governance platforms, chatbots, terminology resources, and public information systems. At the same time, sustained public and private investment is needed to expand African-language

digital infrastructure and language technologies, such as speech recognition, machine translation, OCR, predictive text, and spellcheckers. Strategic collaboration with initiatives such as Masakhane, SADiLaR, universities, and community language experts is essential to develop high-quality open-source datasets. These efforts must be accompanied by measures to reduce the digital access gap, including accelerating the rollout of affordable broadband in underserved areas, zero-rating educational and public service platforms in all official languages, and promoting low-data, multilingual, mobile-first interfaces to ensure equitable access for rural and low-income communities.

Equally important is the expansion of multilingual digital capacity within higher education and society more broadly. Universities should establish African-language digital writing centres, terminology banks, and translation hubs. At the same time, lecturers should be trained in multilingual digital pedagogies that enable the integration of African languages into learning management systems, assessments, and e-learning materials. Community-led digital language initiatives should be recognised and supported as key stakeholders in linguistic transformation, alongside universities and state institutions. Addressing algorithmic bias and improving the visibility of African languages on digital platforms requires greater transparency in platform algorithms, the development of African-language indexing standards, and collaboration with technology companies on inclusive AI training models. These initiatives should be complemented by the promotion of hybrid and translinguaging practices in education and public communication, the strengthening of multilingual civic communication to foster digital linguistic citizenship, and the establishment of a National Multilingual Digital Transformation Task Team to coordinate policy implementation, terminology development, corpus building, and the protection of linguistic rights in the digital and AI landscape.

These recommendations primarily target government departments, public institutions, and higher education institutions, with responsibility shared across national departments—particularly DSAC, DCDT, and DHET—and regulatory bodies such as PanSALB and SADiLaR, while universities, technology companies, and community language organisations are responsible for implementation and innovation within their domains.

Closing remarks

South Africa stands at a critical juncture where digital transformation can either deepen historical inequalities or open radically inclusive pathways for linguistic justice. By centring African languages in policy, technology, education, and community practice, the country can build a digital future that reflects its multilingual soul. The recommendations offered here underscore the need for sustained, collaborative, and justice-oriented action to ensure that all linguistic communities participate fully and equitably in the digital–AI era.

Declaration of generative AI and AI-assisted technologies in the writing process

During the preparation of this work, I utilised [AI] for [language editing]. After using this tool, I reviewed and edited the content as needed. I take full responsibility for the content of the publication.

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