

A Systematic Review of the Barriers to the Adoption of Digital Tools Used to Support Democratic Participation in South Africa

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Received: February 24, 2026

Accepted: April 26, 2026

Online Published: May 20, 2026

doi:10.11114/smc.v14i3.8512

URL: <https://doi.org/10.11114/smc.v14i3.8512>

Abstract

This systematic review examined the barriers to the adoption of digital tools designed to facilitate citizens' democratic participation in South Africa. Following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines, the study systematically synthesised evidence from 48 studies and reports published between 2012 and 2025. The findings revealed that the effective adoption of digital tools is hindered by interconnected structural barriers, including persistent limited access to digital infrastructure, unfavourable regulatory and policy frameworks, coalition-driven political instability, bureaucratic inefficiencies within the government, and limited awareness, as well as a widespread lack of digital literacy among citizens. To address these challenges, there is a need for integrated reforms that recognise broadband access as a human right or a democratic public good, institutionalise digital literacy and skills as a civic competence, and incorporate feedback accountability approaches in governance structures. The study conceptually clarifies the position of digital democracy tools within broader digital-governance theory, distinguishing them from conventional ICT interventions. In practice, it provides policymakers and practitioners with insights to enhance citizen-centred digital governance.

Keywords: digital tools, digital infrastructure, digital adoption, democratic participation, digital divide, South Africa

1. Introduction

Digital democracy tools are progressively transforming the relationship between governments and citizens. These tools include mobile participation applications, civic-tech innovations, social media, and e-voting systems that all use information and communication technologies (ICTs) to enhance democratic engagement, increase transparency, and promote participatory governance (Akinyetun & Ebonine, 2023; Bi, 2024). They provide new avenues through which citizens can communicate with the government, voice their concerns, and influence decisions that affect public life (Kumari, Malik & Arun, 2020). In South Africa, where 75% of the population has internet access and 96% have mobile connections (Mongae, 2024), such tools have gained prominence through platforms like GovChat and MobiSAM; approaches like citizen-based monitoring; and social-media activism exemplified by the #FeesMustFall, #ZumaMustFall, #NotInMyName, #AmINext, and the #ThaboBester saga movements (Matlala, 2024).

The distinction between the use of digital democracy tools and general ICT adoption remains conceptually blurred. While both concepts rely on digital technology, they serve different governance purposes. ICT adoption refers broadly to the use of technology to improve administrative efficiency, data management, and service delivery (Organisation for Economic Co-operation and Development [OECD], 2020). It aligns with the OECD's Digital Government Framework term of *digital enablement* that refers to the digitisation of bureaucratic processes without necessarily transforming participation structures. Such initiatives enhance *institutional capacity to act* but do not automatically enhance *citizens' capacity to influence*.

Digital democracy tools are intentionally designed to foster interactive and participatory governance. They move beyond administrative automation to enable co-production of decisions, shared accountability, and deliberation between citizens and state institutions. Platforms such as GovChat and MobiSAM exemplify this participatory turn that enables citizens to report service failures, express their priorities, and hold the government accountable (Pade-Khene & Lannon, 2017; Peixoto & Fox, 2016). This concept resonates with Arnstein's (1969) Ladder of Citizen Participation, which conceptualises engagement along a continuum from tokenistic consultation to genuine power-sharing. While ICT

adoption corresponds to the lower rungs of *informing* and *consultation*, digital democracy tools ascend toward *partnership*, *delegated power*, and *citizen control*.

Similarly, the OECD (2020) distinguishes between *digitised bureaucracy*, focused on efficiency, and *digital democracy*, which emphasises citizen empowerment, co-creation, and transparency. Digital democracy tools thus operationalise the upper dimensions of this framework, where citizens are not merely informed but actively engaged in shaping policy and governance outcomes. As Arnstein cautioned, access to information alone can result in “informational manipulation” if not accompanied by genuine influence. Effective digital democracy, therefore, requires participatory design, trust, and institutional responsiveness that transform digital access into democratic agency (Mathe, 2022; Van der Merwe & Bohler-Muller, 2014).

In South Africa, these theoretical distinctions carry critical policy implications. While progress has been made in e-government and mobile-service provision, digital democracy remains uneven and exclusionary (Bi, 2024; Helbing et al., 2023). Persistent barriers, such as unequal broadband infrastructure, high data costs, limited digital literacy, linguistic exclusion, and fragmented institutional frameworks continue to constrain participation (Blom & Uwizeyimana, 2020; Maseko, 2024; Van Dijk, 2020). As a result, digital transformation has improved administrative performance but has not fully democratised governance or enhanced citizen voice, particularly among marginalised and rural communities. Against this backdrop, the present study undertakes a systematic review to identify and synthesise the barriers to citizens’ adoption of digital tools that support democratic participation in South Africa. Using the PRISMA 2020 protocol, this review consolidates findings from 48 empirical and theoretical studies published between 2012 and 2025 across various disciplines, including governance, information systems, and development studies.

The review addresses one key research question:

What are the key barriers to citizens’ adoption and effective use of digital tools that support democratic participation in South Africa?

This review is both timely and policy-relevant. Conceptually, it clarifies the position of digital democracy tools within broader digital-governance theory, distinguishing them from conventional ICT interventions. Practically, it provides policymakers and practitioners with insights for enhancing citizen-centred digital governance. By identifying structural, institutional, and behavioural barriers, the study contributes to the development of inclusive digital-democracy strategies that are capable of strengthening transparency, accountability, and civic trust in South Africa’s governance ecosystem.

2. Methods

To answer the above research question, this study adopted a systematic review design to identify, analyse, and synthesise existing empirical and theoretical evidence on the barriers to citizens’ adoption of digital democracy tools in South Africa. The approach was guided by the PRISMA 2020 framework which ensures methodological transparency, replicability, and analytical rigour (Mabidi, 2024). Systematic reviews are particularly useful in consolidating fragmented research across disciplines and in establishing cumulative knowledge that informs both theory and practice (Gough, Thomas & Oliver, 2019). The rationale for this choice is that the design was appropriate as it enabled the integration of diverse disciplines, ranging from governance and ICT to public administration, all of which provided insights into how infrastructural, institutional, and socio-behavioural barriers shape citizens’ adoption of digital democracy tools.

2.1 Identification and Eligibility Criteria

At the identification stage, we determined the scope of the studies to be used in this paper. The identification process enabled the researchers to determine the eligibility criteria for our database searches. We applied the eligibility criteria shown in Table 1.

Table 1. Eligibility criteria for publications

Criterion	Description
<i>Area of study</i>	Academic or any other research (in education, administration and governance, or health) that focuses on the “barriers to adoption of digital tools” as a solution to low democratic citizen participation.
<i>Topic</i>	Studies that focused on barriers to the adoption of digital tools in South Africa. Nevertheless, this study’s scope extended beyond studies that explicitly mentioned the concept “digital tools adoption” in their research titles, abstracts, or keywords. The presence of key terms related to “digital tools”, such as digital technologies, ICT tools, online tools, digital platforms, e-governance, social media platforms, civic tech, internet-based tools, electronic participation tools, digital systems, and digital engagement platforms, was considered for review to ensure conceptual inclusivity. These key terms were used in the search engines to eliminate the ambiguity in the studies.
<i>Scope of study</i>	Studies published in English between January 2012 and January 2025. This research provided data on how digital tools have enabled or hindered political discourse and citizen participation, as well as shaped public opinion (Mwaura, 2017). Furthermore, these studies provided insights into how technological infrastructure developments impact digital usage and inclusion (Enaifoghe, 2025).
<i>Study design</i>	Both empirical and theoretical articles that were based on primary data (from quantitative, qualitative and mixed-methods research). This approach ensured that the paper integrates empirical findings and defines key terms derived from theoretical studies related to the subject matter.
<i>Language</i>	Studies written in English to avoid errors associated with translation.
<i>Research database</i>	Only studies searched through Google Scholar, Google Search Engine, ProQuest Central, and Sabinet African Journal. Whereas these databases offered a wide range of access to academic and grey literature, we recognise the challenges (including limited replicability and comprehensiveness) associated with excluding key indexed databases such as Scopus and Web of Science. This remains a drawback of the research.

Source: Authors’ construct

2.2 Search Strategy and Database

Based on the research topic – *a systematic review of the barriers to the adoption of digital tools used to support democratic participation in South Africa* – searches were conducted using four research databases, Sabinet African Journals, ProQuest Central, Google Scholar, and Google Search Engine, to identify and select relevant studies. The searches for the studies were conducted using abstract and title-oriented approaches. To improve reproducibility, a Boolean search strategy was employed, combining key terms with the following search structure:

(“barriers” OR “challenges” OR “obstacles” OR “constraints”) AND (“adoption” OR “use” OR “utilisation” OR “uptake” OR “implementation” OR “acceptance”) AND (“digital tools” OR “digital technologies” OR “ICT tools” OR “e-participation tools” OR “online platforms” OR “civic tech” OR “electronic participation” OR “social media platforms”) AND (“democratic participation” OR “public participation” OR “civic engagement” OR “political participation”) AND (“South Africa”).

To refine the search results, a detailed search string was tailored to each database, showing its specific syntax and filtering options, in line with the PRISMA guidelines. This search yielded 1,118 records which were screened for relevance and duplication. Duplicates were removed using Zotero reference management software. The selection process followed four PRISMA stages: *identification*, *screening*, *eligibility*, and *inclusion*, as illustrated in Figure 1 (PRISMA flow chart).

2.3 Screening and Quality Appraisal

Two reviewers independently screened titles and abstracts to ensure alignment with inclusion criteria. Full texts were subsequently reviewed for eligibility. Methodological rigour was assessed using the Joanna Briggs Institute critical appraisal checklist which evaluates the clarity of objectives, methodological coherence, validity of findings, and overall alignment with the review goals. Only studies scoring at least 60% on these criteria were retained.

To strengthen reliability, disagreements (concerning the interpretation of the inclusion criteria of studies, specifically those that partially focused on digital participation; the categorisation of study design and methodological appropriateness during quality assessment; and the scoring of certain Joanna Briggs Institute checklist elements where there was either vague or inconclusive reporting) between reviewers were resolved through iterative discussion and reassessment of every study against the pre-established criteria. Where necessary, a third researcher was consulted to offer an objective evaluation. The third reviewer determined which borderline studies to include and addressed differences in the quality scoring, thereby improving consistency and reducing selection bias.

While studies of lower quality were retained, their findings were interpreted cautiously, consistent with best practices in mixed-evidence synthesis. Notably, the reviewers prioritised higher quality studies during thematic analysis and avoided overgeneralising findings drawn from studies with weak methodologies. In cases where conclusions were largely supported by evidence from low quality studies, findings were interpreted as suggestive rather than definitive.

2.4 Data Extraction and Themes

Extracted data were cross-verified for consistency and then analysed using thematic content analysis. Thematic synthesis

involved three iterative steps: (1) familiarisation with extracted data, (2) identification of recurring barriers, and (3) grouping into three interlinked domains. The three domains are:

- i. Digital infrastructure barriers (technological and access constraints),
- ii. Digital literacy and skills barriers (human capacity and awareness limitations), and
- iii. Institutional and policy barriers (structural and governance impediments).

This analytical structure provided the conceptual foundation for understanding how material and social systems jointly determine the trajectory of digital democracy adoption in South Africa.

2.5 Overview of Included Studies

Following the established literature search and selection process outlined above, a total of 1,118 articles were identified from four databases. Specifically, 356 articles were retrieved from Google Scholar, 429 from Google Search Engine, 109 from ProQuest Central, and 224 from the Sabinet African Journal. After removing 988 duplicates, 130 articles remained for screening based on their titles and abstracts, resulting in the exclusion of 43 articles. Subsequently, 87 articles were assessed for eligibility based on their full text, as outlined in the criteria presented in Table 1, resulting in the exclusion of an additional 39 articles. Most publications were produced between 2020 and 2025, indicating a growing scholarly interest in digital governance and participatory technologies during and after the COVID-19 pandemic.

The reviewed studies were published across a range of both international and regional peer-reviewed journals. Despite the variations in the publication requirements, a systematic methodological evaluation was conducted based on the robustness of research design rather than the reputation of the publication journal. The diversity of sources reinforces the relevance and interdisciplinary character of the topic and provides a robust empirical basis for synthesising the barriers to the adoption of digital tools used to support democratic participation tools in South Africa. As illustrated in Figure 1, a total of 48 articles were ultimately included in the systematic review.

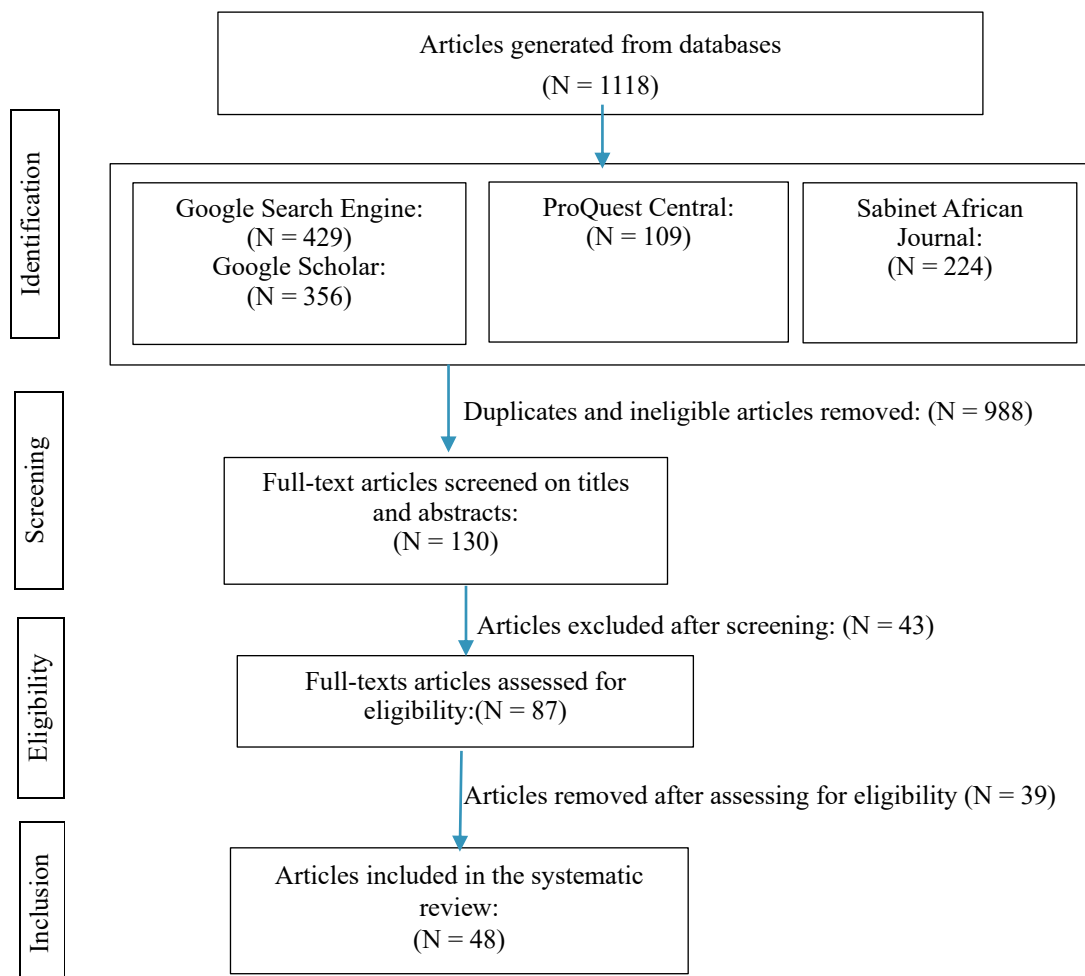


Figure 1. PRISMA flow chart

3. Results

This study addressed the following key research question: *What are the key barriers to citizens' adoption and effective use of digital tools that support democratic participation in South Africa?* This section presents the findings of a systematic review that examined these barriers. A total of 48 articles satisfied the inclusion criteria, comprising a combination of quantitative studies (n = 10), qualitative studies (n = 25), and mixed-method studies (n = 13). As stated earlier, these research studies spanned diverse contexts that included international and regional levels. The publication range from 2012 to 2025 reflects the growth of digital governance and user-centred tools in South Africa.

Consistent with PRISMA guidelines, Table 2 presents a synthesis of the reviewed articles, indicating the author(s) and year of publication, themes, and specific barriers to the adoption of digital tools.

Arising from the screening and quality appraisal (discussed in section 2.3), 28 articles (58%) scored an acceptable quality threshold (50% or higher on the appraisal criteria). In this study, all articles in this category scored at least 60%. Thirteen articles (27%) were rated as moderate quality because of limited methodological details or sample sizes. An additional seven studies (15%) were rated as high quality (because they scored 75% or more affirmative responses) as per the commonly used score threshold. No study was excluded solely based on its low quality; however, results from studies meeting the acceptable quality threshold were interpreted with caution. In addition, a sensitivity or robustness check was conducted to examine whether the exclusion of studies with limited methodological details changed the key barriers framework. However, the three-barrier structure remained unchanged, implying that the synthesis was not driven by moderate findings. This strategy addresses concerns arising from the variations in publication standards and enhances the reliability of the review findings. As illustrated in Table 2, the barriers are categorised into three interconnected themes: digital infrastructure challenges, gaps in digital literacy and skills, and institutional and policy challenges.

Table 2. Classification of reviewed studies by author(s), theme, and barriers to digital tools adoption

<i>Categories of barriers</i>	Barriers	Number of studies	Author(s)
<i>Digital infrastructure barriers</i>	Digital divide, Inadequate and poor access to digital infrastructure	7	Van Rensburg (2012); Enaifoghe (2025); Van Dijk (2020); Maseko (2024); Zisengwe (2024); Blom & Uwizeyimana (2020); Helbing et al. (2023)
	Disparities in internet access	2	Akande & Van Belle (2016); Jackoet-Salie (2020)
	High internet costs and poor broadband rollout	3	Fashoro & Barnard (2020); Omar (2022); Mongae (2024)
<i>Digital literacy and skills barriers</i>	Lack of adequate digital skills, Low awareness and limited capacity for digital engagement	5	Achieng & Ruhode (2013); Graham (2020); Kumari et al. (2020); Oyedemi (2015); Mabidi (2024)
	Lack of digital rights awareness Language barrier	7	Van Deursen & Van Dijk (2019); Moyo (2020); Mhlomi & Osunkunle (2017); Murenzi & Olivier (2017); Khene et al. (2021); Bornman (2016); Mavutha & Mabotja (2024)
<i>Institutional and policy barriers</i>	Unfavourable laws and policy frameworks, Coalition politics, and Bureaucratic red tape	6	Southwood (2021); Mathe (2022); Ayodele et al. (2025); Pholoma et al. (2024); Buthelezi et al. (2024); Matlala (2024)
	Lack of protection against manipulation and censorship	5	Brevis (2022); Mwaura (2017); Onuorah & Sparviero (2024); Pade-Khene & Lannon (2017); Lee (2021)
	Gaps in e-governance strategies and implementation	4	Shava & Vyas-Doorgapersad (2022); Peixoto & Fox (2016); OECD (2020); Arstein (1969)
	Weak institutional digital governance, Lack of real-time responsiveness	4	Van der Merwe & Bohler-Muller (2014); Evans (2019); Mpinganjira & Maduku (2019); Gillwald, et al. (2018)
	Distrust in government and digital systems	5	Akinyetun & Ebonine (2023); Ntika & Chigona (2024); City of Johannesburg (2021); Bi (2024); Gough et al. (2019)

Source: Authors' illustration

3.1 Thematic Classification of Barriers to the Adoption of Digital Tools in South Africa

3.1.1 Digital Infrastructure Barriers

Meaningful e-democratic participation is highly dependent on the availability and accessibility of digital infrastructure. In South Africa, however, digital infrastructural barriers limit universal and fair electronic civic participation. Studies repeatedly emphasised that the effectiveness of platforms such as GovChat, MobiSAM, and e-voting systems is constrained by uneven broadband coverage, limited connectivity in rural areas, and high data costs (Maseko, 2024; Van Dijk, 2020; Zisengwe, 2024) as elaborated on below.

Inadequate and Poor Access to Digital Infrastructure

Based on the review, while poor access to existing infrastructure significantly affects the adoption of digital tools in South Africa (Van Rensburg, 2012), insufficient digital infrastructure exacerbates the issue (Maseko, 2024; Mathe, 2022; Zisengwe, 2024). The limited availability of internet services has left many South Africans unable to use digital tools (Akande & Van Belle, 2016). Both Mongae (2024) and Zisengwe (2024) argue that the limited availability of spaces and digital tools for civic engagement and participation often hinders digital democracy in South Africa.

Additionally, the absence of these infrastructures hampers the pace of digitalisation and rural development, greatly reducing the effectiveness of e-governance programmes and citizen participation in decision-making (Blom & Uwizeyimana, 2020). For instance, a very small proportion of the population has internet access, which is an essential digital infrastructure for using digital platforms such as the Cape Gateway e-government portal (Akande & Van Belle, 2016).

Additional findings suggest that, although South Africa's national internet broadband coverage exceeds 90%, geographical disparities in broadband infrastructure investment have led to poor and uneven internet service performance in the country (Omar, 2022). To this, Maseko (2024) argues that, even after 30 years of democracy, millions of people in South Africa still lack internet access due to limited infrastructure. The situation has been exacerbated by rising unemployment levels and widespread corruption in the government (Maseko, 2024). They note that the government must create a conducive social, economic, and political environment that guarantees digital inclusion.

High Internet Costs

Studies also cited high internet costs as an infrastructural barrier. For instance, although 75% of the population in South Africa are internet users, data affordability remains a significant challenge (Mongae, 2024). South Africa is among the sub-Saharan African countries with the highest data costs, ranking 20th out of 50 (Mongae, 2024), which restricts economically disadvantaged people from maintaining reliable internet access required for citizens' e-democratic participation and engagement. In this context, Fashoro and Barnard (2020) also argue that high internet costs extend to internet connectivity, making it difficult for the government to provide internet access to everyone on a large scale. Evans (2019) also argues that poor internet connectivity has kept most rural South Africans unconnected and unengaged in digital democracy.

Digital Divide

The digital divide usually reflects socio-economic inequalities between the affluent and the less privileged, as well as between the developed and the underdeveloped, in the context of the digital age. The disparities in internet access, availability, and digital literacy in South Africa highlight a significant challenge in the adoption of digital tools. Jackoet-Salie (2020, p. 15) states, "...there is a lack of access to all citizens, especially people residing in rural areas, a shortage in skills to use the internet and the ICT infrastructure is far less developed than in urban areas". This disparity highlights the gaps that exist between individuals who have sufficient access to digital tools and information and those without such privileges, limiting inclusive service delivery and reducing opportunities for the underprivileged (Shava & Vyas-Doorgapersad, 2022).

Findings from a research study by Murenzi and Olivier (2017) suggest that the digital divide in South Africa remains unaddressed. They noted that, in addition to Brazil and the United States of America, South Africa is one of the three countries globally "where the gap between the rich and poor is still too large" (Murenzi & Olivier, 2017, p. 146). They further argued that income and education level inequalities in South Africa exacerbate the digital divide, in the sense that less educated and poorer people are less likely to use and benefit from digital tools.

3.1.2 Digital Literacy and Skills Barriers

In addition to digital infrastructural challenges, digital literacy deficits emerged as a critical barrier across studies (Achieng & Ruhode, 2013; Graham, 2020; Oyedemi, 2015). The following paragraphs explore how limited skills and competencies can hinder citizens' adoption and effective use of digital tools in collaborative governance.

Lack of Digital Rights Awareness

The paucity of understanding among citizens about their rights in cyberspace highlights a major discrepancy in digital rights awareness. These rights include the right to privacy, freedom of expression, access to information, and digital security protection. The lack of knowledge among citizens regarding these rights may discourage them from engaging digitally, as they are vulnerable to exploitation or lack the confidence to use digital tools (Mavutha & Mabotja, 2024; Van der Merwe & Bohler-Muller, 2014). Therefore, a lack of digital rights awareness erodes citizens' trust and empowerment, all of which are key aspects of effective e-democratic participation.

Lack of Adequate Digital Skills among Citizens

A persistent barrier to the effective adoption of digital democracy tools in South Africa is the limited digital competency among citizens. Numerous studies emphasise that inadequate skills to operate digital platforms restrict citizens' ability to engage meaningfully in democratic processes (Akanke & Van Belle, 2016; Oyedemi, 2015). As Akanke and Van Belle (2016) note, there is a strong correlation between ICT proficiency and the extent of digital adoption, underscoring that skills, knowledge, and user confidence are essential determinants of both individual and institutional uptake.

This skills deficit is particularly evident among older populations, who are often excluded from digital participation due to limited familiarity with technology. Such exclusion reinforces age-based inequalities and perpetuates digital marginalisation within civic engagement (Oyedemi, 2015). Evidence from the 2022 General Household Survey confirms that large segments of South Africa's population remain digitally illiterate, lacking the ability to navigate the internet or operate basic devices such as smartphones and computers effectively (Shava & Vyas-Doorgapersad, 2022).

Consequently, the absence of adequate digital skills not only deepens the existing digital divide but also weakens the transformative potential of digital democracy initiatives, as citizens without the requisite competencies remain disconnected from participatory digital governance.

Low Awareness and Limited Capacity for Digital Engagement

Studies revealed a weak culture of awareness regarding available digital democracy tools. For instance, limited publicity and user education hinder the use of MobiSAM and Joburg Connect, even in areas where the platforms are fully operational (Khene, Siebörger & Thinyane, 2021; Mhlomi & Osunkunle, 2017). This reflects an "access over engagement" paradox, where infrastructure exists but citizens lack the confidence or motivation to participate meaningfully (Bornman, 2016).

For example, a study by Khene et al. (2021) found that the low usage of the MobiSAM platform in South African municipalities was primarily due to limited awareness, despite the platform being established to promote participatory governance. In this regard, Mhlomi and Osunkunle (2017) also noted that, although social media platforms such as X, YouTube, and Facebook Live can enhance youths' participation in politics, the absence of deliberate efforts to create awareness greatly hampers the adoption of digital tools for their participation.

This issue is particularly evident among marginalised groups, where there are inequalities in access to information regarding civic technology tools. Oyedemi (2015) highlights that civic participation in digital democracy in South Africa is hindered not only by infrastructure issues but also by a lack of knowledge on using digital spaces to support civic engagement. Furthermore, digital awareness has been overlooked in South Africa's digital inclusion interventions, which supports the statement "access over engagement" (Bornman, 2016).

Language Barrier

In South Africa, multilingualism has significant implications for citizens' digital tools adoption, inclusion, and democratic participation (Van Deursen & Van Dijk, 2019). Although South Africa's linguistic diversity exhibits the country's cultural richness, it also highlights a unique set of barriers in terms of the design, access, and usage of digital tools used to support citizens' participation in decision-making.

The major issue here is that English is the dominant and primary language installed in all digital communication tools. As argued by Oyedemi (2015), English, which is not a native language for a significant percentage of the population in South Africa, is the default language used in most digital interfaces and services, thus resulting in digital exclusion for some groups of people. Relatedly, citizens' inability to read and understand English is critically limiting a considerable portion of rural people from adopting and using the available digital platforms and e-government services in South Africa (Murenzi & Olivier, 2017).

3.1.3 Institutional and Policy Barriers

The most recurrent and deeply entrenched barriers lie within institutional and governance systems. Studies consistently highlighted how weak institutional responsiveness, fragmented policies, and bureaucratic inertia undermine the transformative potential of digital democracy (Gillwald, Mothobi & Rademan, 2018; Shava & Vyas-Doorgapersad, 2022), as examined below.

Weak Institutional Digital Governance

Institutional and policy fragmentation remains a critical barrier to the effective adoption of digital democracy tools in South Africa. Evidence reveals the absence of cohesive digital governance structures across national, provincial, and local spheres, resulting in overlapping mandates, duplicated initiatives, and inconsistent implementation (Van der Merwe & Bohler-Muller, 2014). This lack of coordination weakens institutional responsiveness to citizen feedback and contributes to a decline in public trust in digital participation mechanisms (Ntika & Chigona, 2024).

Van der Merwe and Bohler-Muller (2014) characterise South Africa's digital governance landscape as *fragmented*, with multiple parallel strategies operating in isolation. The absence of a consolidated e-governance framework has led to duplication of programmes and inefficient use of public resources, further exacerbating disparities in digital access and participation. Similarly, Jackoet-Salie (2020), in her assessment of the National Broadband Policy (SA Connect), observes that policy misalignment, conflicting priorities, and delayed implementation have perpetuated digital exclusion, particularly in marginalised and rural communities.

Overall, the gap between e-governance policy formulation and practical execution reflects a systemic weakness in institutional coordination and accountability.

Unfavourable Regulatory and Policy Framework

The advancement and adoption of digital democracy tools in South Africa are significantly constrained by an unfavourable and fragmented regulatory environment. As Shava and Vyas-Doorgapersad (2022) note, weak policy coherence and outdated regulatory frameworks have slowed the pace of digital transformation by creating uncertainty and impeding effective implementation. The absence of an integrated national digital policy framework hinders coordination among stakeholders, resulting in duplication, inefficiencies, and inconsistent adoption of digital initiatives across government levels.

Obsolete legislation and bureaucratic inertia further compound these challenges. Prolonged administrative approval processes and outdated procedural norms delay the institutionalisation of digital participation mechanisms, thereby limiting opportunities for citizens to engage in governance and decision-making processes (Gillwald et al., 2018).

Moreover, restrictive internet laws, rigid content controls, and growing fears of state surveillance have constrained citizens' willingness to participate in online civic spaces (Southwood, 2021). Weak enforcement of data protection principles and the absence of robust oversight mechanisms have intensified concerns about data privacy and misuse, further eroding public trust in digital governance (Moyo, 2020).

Overall, the persistence of incoherent, restrictive, and outdated policy frameworks has produced a regulatory environment that is reactive rather than enabling, stifling innovation and discouraging inclusive digital participation. Without comprehensive policy reform and institutional alignment, South Africa's digital governance ecosystem will continue to struggle to transition from administrative digitalisation to genuine e-democratic engagement.

Coalition Politics

A systematic analysis of the existing literature has revealed that coalition politics can significantly hinder the adoption of digital tools in South Africa (Buthelezi, Zondo, Nxumalo & Vilakazi, 2024). South Africa's political landscape, for instance, at the municipal level is often defined by unstable coalition governments, where changes in alliances can interrupt policy implementation and sustainable digital transformation efforts (Buthelezi et al., 2024). More often, these coalitions result in a political stalemate, where decision-making and policy implementation may be delayed, or resources may be reallocated from digital programmes and initiatives (Pholoma, Lubinga, Masiya & Madumo, 2024).

Bureaucratic Red Tape

According to Ayodele, Plantinga, Sanchez-Bentacourt, Dlamini & Dlamini (2025), extreme institutional red tape and the obstinate nature of government officials in changing their approach reduce the pace of e-governance and digital tools adoption for citizen engagement. Several government officials remain sceptical of digital democracy due to concerns over transparency, accountability, and potential job displacement resulting from increasing digitalisation in government. Such behaviours, coupled with the absence of an overarching regulatory and policy framework as discussed above, prevent the adoption and implementation of the digital initiatives in South Africa.

Lack of Real-time Responsiveness

Prompt and sufficient service responsiveness is critical for effective citizen participation and engagement in e-governance. However, a lack of real-time service responsiveness significantly hinders citizens' adoption and sustained use of digital platforms such as m-government services. In the context of digital tools adoption, responsiveness refers to the ability of government institutions to accept, process, and respond to citizen concerns or complaints presented through digital platforms in a timely and effective manner. According to Gillward et al. (2018), the lack of response or delayed feedback by government departments undermines citizens' confidence and trust in engaging with digital tools, thus limiting their adoption. A case in point is GovChat and Joburg Connect which were established to facilitate and increase communication between the public and the government. Nevertheless, reports from users indicate that they receive slow or no feedback on service complaints regarding the effectiveness of these platforms (Gillward et al., 2018). Such scenarios reinforce a public perception of ineffectiveness in government institutions, prompting citizens to resort to conventional methods of engagement and service delivery, or to withdraw completely from democratic participation.

In this regard, Mpiganjira and Maduku (2019) also noted that people expect digital tools and online platforms to function effectively as communication channels and service delivery mechanisms. However, when these tools and platforms fail to meet people's expectations, users are likely to interpret the government institutions' failure to respond as a lack of interest or weakness in the system. This assumption may break public trust, which is one of the major determinants of digital government services uptake.

Distrust in Government and Digital Systems

Public trust is key to any decision to establish digital initiatives and programmes such as electronic voting. According to the City of Johannesburg (2021), a significant percentage of South Africans remain sceptical about the move to entirely digitalise voting, fearing that it could lead to issues such as vote manipulation or voting system failure. Issues of transparency, security (such as data breaches, malware, and vote tampering), and the reliability of the electronic voting system are major concerns that electronic voting systems in South Africa face (City of Johannesburg, 2021).

Ntika and Chigona (2024) and Akinyetun and Ebonine (2023) argue that low trust levels in public institutions, coupled with concerns about data misuse and surveillance, reduce people's willingness to use digital platforms or tools in civic engagement. Ntika and Chigona (2024) found, in their study on digital service delivery in South Africa, that distrust in government data management reduces people's confidence in digital participation tools and platforms. This issue is exacerbated by past events of poor service delivery, corruption, and digital exclusion, all of which raise doubts about the government's digital initiatives. Correspondingly, Akinyetun and Ebonine (2023) note that trust is more than just reliable technology; it is about making citizens believe that digital engagement will yield meaningful results.

Lack of Protection against Manipulation and Censorship

Furthermore, the literature revealed that citizens' security concerns about data protection significantly affect civic engagement. Moyo (2020) stresses that while South Africa has made progress in establishing data protection policy frameworks, there are gaps in the protection and security of users' personal information, particularly from unauthorised individuals or hackers. According to Onuorah and Sparviero (2024), cyber threat issues, such as identity theft and misinformation, greatly discourage citizens' adoption of digital tools and platforms for democratic participation. Besides, the absence of cybersecurity policies and inadequate digital literacy increase fears among users of digital tools, particularly in societies with limited access to e-governance tools (Brevis, 2022). Lee (2021) critically evaluates the implementation of South Africa's data protection framework (specifically, the Protection of Personal Information Act) and highlights structural weaknesses that endanger citizens' safety.

4. Discussion

This study aimed to investigate the barriers hindering citizens' adoption and effective use of digital tools that support democratic participation in South Africa. Synthesising evidence from 48 studies published between 2012 and 2025, three dominant and interdependent categories of barriers emerged: digital infrastructure inequalities, digital literacy and skills deficits, and institutional and policy fragmentation. Whereas these barriers have been extensively studied in the South African context, our synthesis reveals deeper systemic or institutional dynamics that move far beyond the anticipated findings.

While several scholars have conceptualised infrastructure gaps, literacy and skills deficits, and weak institutional capacity as distinct predictors, our review shows that the above barriers operate as interrelated, reinforcing factors. Digital tools adoption in South Africa is therefore not limited by one factor, but by the interaction between infrastructural access, socio-cognitive abilities, and governance design and implementation. This integrative perspective represents the main contribution of our systematic review.

Firstly, infrastructural inequality remains a significant obstacle to inclusive digital democratic inclusion. While broadband coverage reportedly exceeds 90%, accessibility and quality are uneven, particularly in rural areas (Gillwald et al., 2018; Omar, 2022). High data costs, among the highest in sub-Saharan Africa, further constrain sustained participation (Fashoro & Barnard, 2020; Mongae, 2024). These findings confirm earlier observations that South Africa's digitalisation trajectory mirrors structural socio-economic inequalities (Murenzi & Olivier, 2017; Van Dijk, 2020).

Nevertheless, the analysis uncovers a more nuanced and unexpected pattern: expansion of broadband connectivity has not consistently strengthened democratic participation. Notably, in relatively well-connected urban areas, civic engagement through digital tools and platforms frequently remains consultative rather than co-creational. This implies that citizens may provide feedback and lodge complaints, but institutional responses are limited. This result contests the Technological Deterministic assumptions that connectivity alone strengthens democratic inclusion and improves participation, suggesting that digital infrastructure is an essential but an inadequate factor for deepening democratic participation and governance.

In contrast to the narratives positioning infrastructure as the main barrier to digital tools adoption and democracy

participation, our analysis indicates that South Africa's "institutional design and political incentives" are key in shaping participatory outcomes. Therefore, expanding connectivity minus increasing institutional responsiveness risks yielding symbolic instead of meaningful citizen engagement.

Secondly, our review confirms that citizens' digital skills and awareness of human rights are critical determinants of digital tools adoption. According to Achieng and Ruhode (2013) and Akande and Van Belle (2016), limited ICT proficiency limits citizens' ability to navigate the e-government platforms, while inadequate civic education undermines effective engagement. Linguistic exclusion, arising from English-dominant interfaces, further restricts rural and indigenous-language speakers or communities (Oyedemi, 2015). These dynamics reinforce digital inequality beyond access, deepening exclusion among marginalised populations.

However, the synthesis illustrates a broader systemic issue – the persistence of an "access without engagement" paradox. Digital infrastructure expansion has not resulted in high digital civic engagement rates, implying that access to digital tools and platforms does not automatically lead to civic empowerment. Rather, socio-economic and educational differences and uneven digital literacy influence who will be the beneficiaries of digital democracy tools and platforms.

This result confirms the argument that South Africa's digital tools disparities are beyond basic access divides, extending to secondary-level skills and tertiary-level outcome disparities, where individual income levels shape one's ability to transform access into meaningful influence. The barriers highlighted by individual scholars collectively form a basis for exclusion that cannot solely be addressed by connectivity-oriented reforms or policies.

Thirdly, institutional fragmentation and policy incoherence emerged as recurrent obstacles in the reviewed studies. Overlapping mandates, inconsistent implementation (Jackoet-Salie, 2020; Van der Merwe & Bohler-Muller, 2014), and outdated and restrictive policies and frameworks (Shava & Vyas-Doorgapersad, 2022) create uncertainty, stifling innovation and inclusion. Political instability, coalition politics, and bureaucratic inertia further disrupt continuity in digital initiatives (Buthelezi et al., 2024).

More importantly, the study highlights a mutually reinforcing interaction between institutional unresponsiveness and citizens' distrust. Gillwald et al. (2018) and Mpinganjira and Maduku (2019) posit that digital tools and platforms without transparent feedback mechanisms not only fail to empower citizens but also can confirm the views of symbolic consultation. When civic engagement fails to openly influence decision-making, citizens' distrust weakens further, thus discouraging future engagements. This recurrent dynamic was not highlighted by individual scholars, yet it came out strongly in cross-study comparisons.

Besides, concerns over data misuse, surveillance, and weak enforcement of privacy protections erode confidence in government digital programmes (Moyo, 2020; Ntika & Chigona, 2024). In such scenarios, digital tools and platforms are perceived less as instruments of empowerment and more as arms of bureaucratic authority. The lack of institutional accountability thus transforms digital technological innovation into a space of uncertainty rather than an approach to inclusion in governance.

5. Theoretical Implications

Drawing on the dual lenses of Technological Determinism and the Social Construction of Technology (SCOT), our findings suggest that there is a need to reconceptualise digital democratic participation beyond the technological transformation paradigm.

From a Technological Determinism point of view, democratic participation largely depends on physical infrastructure. Our analysis corroborates that continuous connectivity disparities and high data costs hinder inclusivity. Nevertheless, the findings also challenge Technological Determinism theory by indicating that digital infrastructure expansion alone is not enough to deepen democratic engagement.

Furthermore, the SCOT perspective highlights how digital tools and platforms derive meaning from social interpretation. For many South Africans, digital tools and platforms are associated with risks, histories of inequalities, uneven government responsiveness, surveillance, or elite discourse rather than empowerment. Technology is thus experienced not as a neutral artefact, but as socially positioned artefacts influenced by institutional trust and power relations.

Collectively, the above insights demonstrate that digital tools adoption and democratic participation should not be framed merely as questions of technological innovation but rather as political economy issues. Digital democracy innovations and programmes are embedded in the existing institutional power and incentive structures. In cases where government leaders are not motivated to share power and authority, digital tools and platforms tend to serve as instruments of managed inclusion rather than meaningful participation. This kind of conceptualisation contributes to theory by situating citizens' digital tools adoption and participation as a space of negotiated power instead of failed digital or technological advancement.

In the South African policy perspective, the synthesis indicates that barriers to citizens' adoption of digital tools that support democratic participation are structurally interconnected. Digital infrastructure gaps overlap with socio-economic classes; digital literacy and skills deficits are associated with historical educational disparities; and institutional weakness influences whether adoption is symbolic or meaningful. Thus, policymakers and the government cannot depend on fragmented reforms or policy frameworks.

Lastly, digital tools rollout without proper institutional reforms backed by wider coverage and affordable internet measures, or digital educational campaigns lacking accountability techniques are less likely to increase tools adoption or deepen civic engagement.

6. Conclusion

This systematic review examined the barriers to citizens' adoption of digital tools used to support democratic participation in South Africa, synthesising evidence from 48 empirical and theoretical studies published between 2012 and 2025. Whereas digital infrastructure gaps, digital literacy and skills deficit, and institutional breakdown have been well documented in the literature, our comprehensive synthesis reveals a complex interplay of these barriers as interconnected structural conditions that collectively undermine the adoption of digital tools and their potential to deepen democratic participation.

Our findings question the infrastructure-centred discourse that equate digital connectivity expansion with adoption and democratic participation increase. Even in environments where connectivity is well established, adoption remains limited. Civic engagement and participation often take a consultative form with little or no room for genuine digital democracy. This illustrates that although digital infrastructure is a necessary condition, it is inadequate for citizens' meaningful digital democracy tools' adoption and participation.

This systematic review advances theoretical insights by positioning digital tools adoption and participation as political economy issues embedded in institutional incentives, governance structures, and trust dynamics. Drawing on SCOT perspectives, the study demonstrates that digital democracy is not merely a technical endeavour, but a socio-political construct shaped and negotiated within institutional settings.

For policymakers, the ramifications are clear. Digital democracy cannot be realised through infrastructure development alone. It calls for integrated reforms that recognise broadband access as a human right or a democratic public good, institutionalise digital literacy and skills as a civic competence, and incorporate feedback accountability approaches in governance structures. Without institutional restructuring, digital democratic participation risks becoming a form of managed consultation instead of meaningful participatory decision-making.

Despite these contributions, various limitations of the study should be noted. The study relied on a limited number of databases, possibly constraining the completeness and replicability of the search approach. Furthermore, the inclusion of only English studies may have left out relevant empirical data in a highly multilingual country such as South Africa. Whereas a systematic quality evaluation of studies was conducted, the inclusion of studies with different study designs and methodological robustness may have shaped the general synthesis, regardless of the attempts to prioritise higher quality studies. In addition, the use of secondary data limits the ability to document real-life experiences, changing practices, and current dynamics of digital engagement. Ultimately, the study's single-country focus limits the generalisability of the evidence beyond South Africa.

Subsequent studies could resolve these drawbacks by broadening the database coverage, integrating multilingual search approaches, employing more stringent quality thresholds, and where possible, supporting systematic reviews with primary empirical data. Cross-national analysis would be beneficial in examining the extent to which countries with similar systemic and institutional constraints emerge across diverse environments.

Lastly, citizens' adoption of digital tools in South Africa is not merely an infrastructural issue. The issue is also institutional and political; addressing it thus requires not only an increase in connectivity and digital tools and platforms, but also structural transformation of how authority, power, accountability, and people's voices are organised in the technological era.

Acknowledgments

Not Applicable.

Author contributions

All authors contributed equally to the conceptualisation, drafting, and revision of the manuscript. All authors read and approved of the final manuscript.

Funding

This work was supported by the Department of Research and Innovation (DRI), through the University of Pretoria Postdoctoral Fellowship (UP PhD) Programme: Grant Source: DRI-Cost Center: A0X816.

Competing interests

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Informed consent

Obtained.

Ethics approval

The Publication Ethics Committee of the Redfame Publishing.

The journal's policies adhere to the Core Practices established by the Committee on Publication Ethics (COPE).

Provenance and peer review

Not commissioned; externally double-blind peer reviewed.

Data availability statement

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

Data sharing statement

No additional data are available.

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