



E-governance and public service delivery in South Africa: An overview of challenges and opportunities

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Abstract

E-governance is widely recognized as a transformative approach to improving public service delivery. The implementation of e-governance stands out as a powerful tool for democratizing service delivery, encouraging greater inclusivity and public participation. This paper explores the state of e-governance adoption and its influence on public service delivery in South Africa. It aims to identify critical barriers to effective digital transformation and discuss potential pathways to more inclusive governance. The analysis draws on relevant scholarly and policy literature to map out emerging trends, structural challenges, and institutional responses related to e-governance and service provision. The analysis reveals that lack of digital access prevents certain populations from fully participating in digital governance, which led to unequal representation and a lack of responsiveness from government services. To mitigate these disparities, it is crucial to implement comprehensive training programmes and improve infrastructure that supports internet connectivity in underserved areas. Ultimately, fostering an equitable digital landscape is crucial for enhancing citizen engagement and trust in government institutions. By highlighting successful case studies and innovative practices, this study provides actionable recommendations for policymakers.

Keywords: E-Governance; Public Service Delivery; Digital Divide; Icts, Municipalities

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1. Introduction

Most African governments have established digital platforms that allow public servants to provide services to citizens speedily (Plantinga, 2024; Motloun and Hofisi, 2023; Millard, 2017). The implementation of e-governance stands out as a powerful tool for democratizing service delivery, encouraging greater inclusivity and public participation. According to Adanlawo and Chaka (2024), e-governance allows the government to disseminate information, solicit information or feedback from the public, and provide services via electronic means. With e-governance, the government can respond to and resolve public inquiries and provide information, empowering its citizens (Akpan-Obong et al., 2023; Li and Shang, 2023; Lee-Geiller and Lee, 2019). E-governance is a broader concept that defines and assesses the effects of technology on government practice and administration, as well as the relationships between public servants and the rest of society.

As noted by Naik et al. (2021), e-governance leads to increased internal efficiency, better service delivery, and higher citizen satisfaction. E-governance has emerged as a critical indicator of the public sector's need to modernize and provide more efficient services to citizens. According to Pandey (2023), e-governance can increase trust between a government and its citizens. Digital technologies like social media, smartphone applications, and online forums allow people to participate in real-time policy conversations, share their opinions, and offer feedback (Hujran et al., 2023).

Globally, countries are increasingly adopting e-governance to modernise their public service delivery systems. On the African continent, e-governance adoption is gradually increasing as governments recognise its potential to drive socioeconomic development (Hakim and Yazdani, 2024; Lee-Geiller and Lee, 2019). In South Africa, the government is still struggling to utilise digital platforms for service delivery. The South African government recognises the value of technology in improving citizen-state communication, delivering information and services to communities, and improving the functionality of government services for the benefit of all. Many municipalities still use manual processes, which causes delays in service delivery. This is because each procedure must go through bureaucratic approval processes, which can take time to complete. To address these challenges, there is a growing push for the integration of digital solutions that streamline operations and enhance efficiency. By investing in technology and training, the government aims to modernise its service delivery mechanisms and ensure that citizens receive timely and effective support. To provide effective service delivery, citizens must consider their "participation and involvement." The South African government must fully utilise the benefits of e-government as well as the efficiency provided by information and communication technology (ICT). However, a robust ICT infrastructure and sustained strategic commitment are necessary for the successful execution of e-governance efforts.

2. Problem context and objective

Although digital governance has been widely promoted across the African continent, public service delivery in South Africa continues to face systemic challenges, particularly in underserved areas. Despite the availability of e-governance tools, implementation outcomes remain uneven. This disparity indicates that there must be targeted strategies that address the unique barriers faced by these communities. By fostering greater collaboration between government agencies and local stakeholders, South Africa can enhance the effectiveness of its digital initiatives and ensure that all citizens benefit equally from technological advancements. This study

is important to South Africa, as it not only sheds light on existing gaps but also proposes actionable solutions that can be employed to bridge them. Emphasising inclusive policies and community engagement will be crucial in achieving sustainable progress and promoting equitable access to resources.

This paper explores the state of e-governance adoption and its influence on public service delivery in South Africa. It aims to identify critical barriers to effective digital transformation and discuss potential pathways to more inclusive governance. The analysis draws on relevant scholarly and policy literature to map out emerging trends, structural challenges, and institutional responses related to e-governance and service provision. By highlighting successful case studies and innovative practices, the research seeks to provide actionable recommendations for policymakers. Ultimately, fostering an equitable digital landscape is crucial for enhancing citizen engagement and trust in government institutions.

3. Conceptual background

3.1. Digital divide

Digital divide refers to unequal access to effective ICT and content, quality networks, adequate bandwidth, value for money, and the ability of users to access the system. The differences between those who have and do not have access to information, the Internet, and other information technologies and services in terms of economic level, gender, race, physical ability, and geography are referred to as the "digital divide." In the end, these differences can prolong cycles of inequality by seriously impeding possibilities for social interaction, work, and education. Barra et al. (2024) aver that these inequalities can significantly impact economic opportunities, educational outcomes, and social engagement for those on the disadvantaged side of the divide. Digital divide is a barrier to the implementation of e-governance in South Africa due to disparities in access to electronic services. This lack of access prevents certain populations from fully participating in digital governance, which leads to unequal representation and a lack of responsiveness from government services. Consequently, bridging the digital divide is essential for fostering inclusive e-governance that serves all citizens effectively.

3.2. E-participation

E-participation has been identified as the use of information and communication technology (ICT) to improve and ease citizen participation in public service delivery, government procedures, and decision-making. E-participation has been described as a key method for promoting public power, raising awareness, and connecting citizens to government (Mncwango and Adanlawo, 2025; Fritz et al., 2024). E-participation entails direct citizen participation in policy-making processes, plans, programmes, and actions related to service delivery. It has been observed that efficient and effective public administration is a necessary condition for economic and social development (Mncwango and Adanlawo, 2025; Berezhna et al., 2020). It entails a variety of activities, including public disclosure of government information and activities, consultation with the public on policy issues, and participation in decision-making. E-participation is a democratic ideal that has grown in importance as trust in government has declined and the demand for public accountability has increased (Shou et al., 2025). It is thought to be especially useful in areas where the community and policymakers do not work

together effectively. Public administrators have recognised the value of e-participation in making better decisions and increasing citizen buy-in.

3.3. E-governance

Xaba et al. (2025) define e-governance as the use of information and communication technologies (ICTs) to increase the efficiency, transparency, and accountability of government services. It entails the sharing of information and communication between the government and citizens, businesses, and other stakeholders. Hooda and Singla (2021) define e-governance as a two-way digital technology-based communication between the government and its internal and external customers. More specifically, e-governance aims to improve internal government operations to improve citizen-government relationships. Through e-governance, citizens can access government services in a simple, effective, and transparent way (Hartanto et al., 2021; Van Deursen et al., 2021). The effectiveness of e-governance depends on citizens' willingness to learn about current events and voice their opinions. There is undoubtedly a role for individuals to participate in e-government (one-way) methods, even though e-participation is a concept and practice closely related to e-governance (two-way). E-governance in South Africa faces difficulties due to the low level of digital proficiency among people and governmental employees.

In summary, digital divide is especially pertinent to e-governance, where internet accessibility and digital literacy are essential for providing equitable and effective public services. By addressing the disparities created by the digital divide, e-governance initiatives can empower marginalised communities and promote equitable access to essential services. Ultimately, bridging the digital divide is vital for fostering social cohesion and economic development in a technology-driven society. In the context of service delivery, e-participation is still essential since it enables people to fully comprehend the entire process, fosters transparency, and eventually results in their acceptance of the services offered. E-participation is central to the e-movement's mission, and it makes use of e-government infrastructure to facilitate public participation.

4. Digital Inclusion and the urban-rural divide in South Africa

Governments, societies, and communities are increasingly involved in initiatives aimed at closing the digital divide and promoting economic and social development. These efforts are commonly referred to as "digital inclusion" policies and projects. Only 42.3% of rural homes have internet connectivity, compared to 67.7% of metropolitan households, according to Statistics South Africa's 2019 General Household Survey. The main cause of this discrepancy is the enhanced ICT infrastructure in cities, which makes e-government programmes and online services more successful (Mukonavanhu, 2024). These initiatives are crucial for promoting equitable access to information and services across the nation. Addressing the urban-rural digital divide requires targeted investments in infrastructure, education, and community engagement to ensure that all South Africans can benefit from the digital economy.

Rural areas have little ICT resources, inconsistent electricity, and limited internet coverage, which makes e-government adoption and upkeep challenging (Nkomo and Adanlawo, 2024; Khoza et al., 2023). These challenges not only hinder access to essential services but also exacerbate the digital divide between urban and rural populations. As a result, residents in these areas may struggle to engage with government initiatives

that increasingly rely on digital platforms for communication and service delivery. The pandemic has made matters worse; an estimated 750,000 children dropped out of school because of a lack of access to remote education (Stats SA, 2022). Rural communities are therefore usually left out of digital governance projects, which jeopardises the fair distribution of e-government services. Urban dwellers often have easier access to e-government services, which enables people to engage with governments more effectively, obtain information more readily, and take part in online governance processes.

Table 1. Households' access to the Internet by place of access, urban/rural status and province

Place where Internet is accessed	Rural/ Urban status	Province (per cent)									
		WC	EC	NC	FS	KZN	NW	GP	MP	LP	RSA
At home	Metro	39,4	15,6	,	7,1	15,1	,	19,6	,	,	21,4
	Urban	29,0	3,8	9,4	5,4	9,0	7,6	11,4	6,3	9,3	10,7
	Rural	5,1	0,5	6,3	7,9	1,1	0,5	12,8	2,0	1,9	1,6
	Total	34,7	6,6	8,4	6,2	8,3	3,5	18,6	3,9	3,4	13,0
At work	Metro	17,7	16,6	,	10,2	17,8	,	19,9	,	,	18,6
	Urban	25,2	8,7	12,9	7,6	13,9	9,7	15,5	6,0	12,6	12,7
	Rural	16,2	4,8	6,7	8,9	3,9	3,7	2,8	4,2	2,7	4,1
	Total	19,8	9,8	10,9	8,6	11,6	6,2	19,3	5,0	4,8	12,9
Using mobile devices	Metro	70,8	69,5	,	70,6	86,7	,	72,6	,	,	74,1
	Urban	67,6	69,7	67,8	66,9	75,9	73,5	64,6	82,0	68,2	71,2
	Rural	41,3	55,9	62,6	68,7	61,6	60,2	46,0	71,7	58,9	61,1
	Total	68,5	63,6	66,1	68,2	74,6	65,7	71,5	76,2	60,8	69,6
At Internet cafes or educational facilities	Metro	17,3	12,4	,	8,2	10,4	,	19,1	,	,	16,6
	Urban	19,4	6,4	4,2	7,8	4,8	7,6	11,9	6,3	5,3	8,7
	Rural	3,9	3,7	1,8	2,3	3,7	3,1	8,6	4,5	1,7	3,2
	Total	17,3	7,4	3,4	7,3	6,6	5,0	18,2	5,3	2,5	10,8

Source: Stats SA (2022)

According to Table 1, the Western Cape (34.7%) and Gauteng (18.6%) had the greatest rates of household Internet connection at home, while Limpopo (3.4%) and Mpumalanga (3.9%) had the lowest rates. Only 1.6% of rural households overall and less than 1% of rural homes in the Eastern Cape (0.5%) and North-West (0.5%) have access to the Internet at home, compared to 21.4% of households in urban regions. A significant portion of households used the Internet at home (13.0%), at work (12.9%), and in Internet cafés or educational institutions (10.8%). Only 4.8% of households in Limpopo used the Internet at work, compared to 19.8% of households in the Western Cape and 19.3% of homes in Gauteng. The table shows that households in rural

areas now have considerably easier access to the Internet thanks to mobile access. Mobile Internet access devices are far more prevalent in rural areas than any of the other ways, even if their use in rural areas (61.1%) still trails that of urban (71.2%) and metro areas (74.1%).

According to a recent study, there is a notable difference in smartphone ownership between residents of urban and rural areas. Compared to 54% in urban regions, only 33% of people in rural areas own a smartphone (Miyajima, 2022). Therefore, at least two-thirds of rural residents will lack a device to access the Internet, even if broadband connectivity is made available. Therefore, the creation of public centres where the community can use technology will also be necessary for rural initiatives. This disparity highlights the need for targeted strategies that bridge the digital divide, ensuring that rural communities are equipped with the necessary tools and resources to engage effectively (Raihan et al., 2024).

To bridge the gap of the digital divide in rural communities, Zenzeleni Networks acts as a mediator to guarantee that community requirements are satisfied. With rates up to 20 times cheaper than those of current providers, Zenzeleni Networks Mankosi Co-op Ltd has connected over 13,000 people and ten institutions. Furthermore, compared to the big network operators, it has been able to deliver a network service of noticeably higher quality. Addressing these gaps will not only enhance participation but also foster a more inclusive approach to governance that benefits all citizens, regardless of their geographic location. To mitigate these disparities, it is crucial to implement comprehensive training programmes and improve infrastructure that supports internet connectivity in underserved areas. By doing so, we can empower rural residents to actively engage in civic activities and access essential services, ultimately leading to a more equitable society.

5. Policy and Institutional Landscape in South Africa

E-governance in South Africa faces significant problems that impede service delivery because the public sector is unable to adopt e-governance services and provide platforms that are economically friendly, effective, and efficient. To improve the dependability and predictability of government operations and provide better and more equitable access to information and services, the national government of South Africa mandates various departments and agencies to go digital (Dakarai, 2023). Some of the government policies and frameworks are:

- *National Integrated ICT Policy White Paper of 2016*: The following three pillars were listed in the white paper as being necessary to create a digital society:
 - a) The goal of the digital transformation of government is to boost public service efficiency and meet the government's development goals. Public service digitisation will increase demand for Internet connectivity and promote e-commerce expansion.
 - b) Ensuring that all citizens may actively engage in the digital society and realise the potential of ICTs to enhance their quality of life is the main goal of digital access.
 - c) Digital inclusion aims to guarantee that no South African is left behind from the advantages of a knowledge society and digital economy (Mullon and Ngoepe, 2019).
- *White Paper on Transforming Public Service Delivery (Batho Pele) of 1997*: The document presents a policy framework and a practical implementation approach for enhancing public service delivery. The procedure is delineated in the eight (8) Batho Pele principles.

Eight guiding principles have been established by Batho Pele to provide a legitimate basis for legislation and policy pertaining to public service delivery. The Constitution's ideals of upholding and advancing high standards of professional ethics, responding to people's needs, using resources fairly and impartially, encouraging citizens to participate in policymaking, and providing an accountable and transparent public administration are all in line with these principles. By guaranteeing that ICT is a crucial component of transformation and enhances the policies, procedures, and technologies of service delivery, the policy framework supports the application of the eight principles. One of the eight (8) Batho Pele principles is public consultation, which calls on the government to consult the public regarding the quality and extent of public services (Republic of South Africa, 1997).

- *SA Connect*: SA Connect represents the execution of the national broadband programme sanctioned by the Cabinet in 2013. The policy aims to address the National Development Plan's technology goals of establishing an inclusive information society and putting the government in a position to facilitate the delivery of broadband to several underserved district municipalities, thereby closing the gaps in broadband connectivity. The programme was divided into two phases:
 - Phase 1 was implemented in 2017 through an “anchor tenant” approach, providing broadband connectivity to schools, health facilities, and other government facilities in 8 selected districts to stimulate private sector investment in broadband infrastructure.
 - Phase 2 was approved by the Cabinet in 2022. The key objective is to achieve 100% broadband access for all communities and government facilities. The programme aims to connect South Africans within 36 months (2023/24g2025/26) at a minimum speed of 5 Megabits per second (Mbps) for households and 10 Mbps for Government facilities, including public schools and health facilities. The government aims to offer reliable, cost-effective, high-quality broadband services at fast speeds through SA Connect. The government is optimistic that Phase 2 of SA Connect will help more communities transition to the digital era (Department of Communication & Digital Technologies, [DCDT] 2024).
- *National Development Plan (NDP) target 2030*: The SA Cabinet welcomed the NDP on the 6th of September 2012 as prepared by the National Planning Commission (NPC) and acknowledged the plan as the strategic framework to form the basis of future government planning (Mpya, 2020). Although the NDP 2030 does not mention eGovernment as a key enabler to the implementation, the NDP 2030 does regard the vision for Information and Communication Infrastructure. The formation of a seamless information infrastructure that will meet the needs of citizens, business, and the public sector, providing access to the wide range of services required for effective economic and social participation. The vision also includes the use of multicasting and instant online translation, digitisation and ICT applications, which will make it easier for people to communicate and obtain information using different languages. It also promotes the development of mobile government (m-Government) services.

To ensure an efficient and effective e-service delivery, governments at both national and provincial levels adopted a series of digital platforms to enable e-participation. Some of these platforms are:

- *Home Affairs (HA) digital verification system*: Digital verification systems confirm the identities of their clients by comparing biometric features such as fingerprints and facial recognition to the National Population Register. The system will reduce the time required to verify identity with the department

to establish a bank account or get a social subsidy. The verification method is another example of Home Affairs' progress in the digital transformation process (Department of Home Affairs [DHA] (2025).

- *BizPortal (CIPC online registration)*: The Companies and Intellectual Property Commission (CIPC) developed the BizPortal platform to offer business registration and related services in an easy-to-use, paperless digital format. It was developed in response to the need to make doing business in South Africa easier, especially when starting a business (BizPortal, 2025).
- *e-Joburg*: e-Joburg is City Smart. It is a platform that delivers smart services to all Johannesburg city stakeholders. The platform can make secure electronic municipal payments online. The users maintain complete control when they pay their municipal account through the online portal (e-Joburg, 2021).
- *City of Ekurhuleni Siyakhokha*: Siyakhokha is the City of Ekurhuleni's online system, designed to make it faster and easier to interact with the city. With Siyakhokha, queries can be lodged, and account history checked. The platform makes it easy to receive and pay an account anytime and anywhere (City of Ekurhuleni, 2025).

6. Challenges in implementation: A South African perspective

Nel and Masilela (2020) aver that service delivery encompasses all the elements that pertain to the timing, manner, and location of a service's provision to a client, as well as its fairness. When it comes to providing public services, government agencies are frequently criticized for their bureaucratic procedures. Corruption and fraud have been issues with the digitisation of the public sector in South Africa. Poor ICT infrastructure, digital clusters, interconnection (load-shedding), internet access, and inconsistent monitoring and evaluation are the most prevalent issues in the South African public sector (Mamokhere and Thusi, 2024).

Adjei-Bamfo et al. (2019) have pointed out that lack of Information Communication Technology (ICT) skills and infrastructure is a key obstacle to the use of e-government services in most parts of South Africa. It is quite difficult to use or provide e-government services in the absence of the relevant set of ICT skills and ICT infrastructure.

Another major challenge is the limited access to reliable internet and digital infrastructure. In rural areas of Limpopo province, for example, poor internet access is common, making it difficult for locals to participate in digital activities. According to recent data, only over 39% of Limpopo homes have internet connectivity, while the national average is around 62% (Statistics South Africa, 2020). This inequality is especially prominent in rural areas, where infrastructure constraints and economic issues impede the adoption of digital technologies. Limpopo's efforts to bridge the digital divide include government attempts to improve digital infrastructure and increase internet access. SA Connect, the South African government's broadband initiative, aims to improve connectivity in underdeveloped regions like Limpopo. Additionally, various non-governmental organisations are working to provide digital literacy training and resources to local communities, helping to equip residents with the skills needed to participate in the digital economy (Abdulnabi, 2024).

A good example is a partnership initiative between Vodacom and Google South Africa. The initiative forms part of the companies' continued efforts to reduce the digital divide. The companies donated free Android smartphones to hundreds of people in 11 villages across the Limpopo province in South Africa to access mobile

services. Similar support occurs in the Eastern Cape, where new technology and skills are made available to promote rural development through the Mbashe Siyakhula Living Lab project.

Another challenge is limited network coverage and inconsistent power supply that significantly hinder the rollout and effectiveness of digital services (Aruleba and Jere, 2022; Moetlhoa et al., 2024). These challenges disproportionately affect rural areas, creating a digital divide and limiting access to essential services like e-government, education, and healthcare. Mobile companies such as MTN, Cell-C, Telkom, and Vodacom function in Limpopo and neighbouring provinces; nevertheless, coverage drastically differs between urban and rural regions, with numerous settlements encountering inadequate and inconsistent signals. The user experiences frustration when unable to utilise the offered connectivity. End users face serious challenges with network connectivity, which can range from programmes not working properly to a total loss of connectivity. The more residents can benefit from their online activities, the better their internet access is in terms of availability, dependability, and performance.

The deficiency of ICT skills and training impacts South Africa comprehensively. A recent survey on ICT skills by UMUZI Johannesburg (2023) indicates that South Africa faces a deficit of around 77,000 high-quality digital employees. Furthermore, Stats SA indicates the magnitude of the digital divide, since a considerable segment of the population in Limpopo Province lacks digital competencies. The 2020 General Household Survey indicated that Limpopo province had a lower internet connection rate than other provinces in South Africa, with merely 50% of households having internet access (Statistics South Africa, 2020). As a result, it can therefore be deduced that South Africa needs a proper mechanism to close the recurring ICT skills shortage gap to achieve the e-government initiative.

Concerns about the digital divide have been raised by the Auditor-General of South Africa (AGSA). AGSA emphasized apprehensions over the institutional capability of government departments and municipalities, especially concerning digital transformation and service delivery. These issues are frequently connected to the digital divide, which impacts citizens' capacity to obtain necessary services and fully engage in the digital economy. Also, reports from the public protector of South Africa on the digital divide often raise questions about the ability of the institutions to deal with the matter. Insufficient funding and expertise are often cited in these reports as impeding the successful execution of digital inclusion programmes (Adam and Dzang Alhassan, 2021).

It can be deduced that another rising sort of socioeconomic inequality that affects citizens' access to life-improving services is the "digital divide." The major challenge is that most of the rural communities do not have access to ICTs and are not part of the telecom network. To close the digital divide in underprivileged communities, it is necessary to have a thorough understanding of the root causes of the difference and to recognise the need for dedicated management that is equipped to overcome the different obstacles that these communities face.

7. Pathways for improvement: strategies for South Africa

It has been observed that efficient and effective public administration is a necessary condition for economic and social development. Therefore, for e-governance in service delivery to fosters accountability, openness, and consensus in addition to increased public participation, the following are recommended:

Local municipalities in South Africa need to emulate local municipalities like the city of Ekurhuleni by indulging in local pilot projects, such as smart municipal billing or SMS-based service delivery. These kinds of projects will give people access to local governments to lodge their queries, pay, and check an account easily.

To address the digital gap, one that involves boosting digital literacy, upgrading infrastructure, and guaranteeing that everyone has fair access to technology, public-private partnerships with local telecoms (e.g., Vodacom Foundation ICT centers) is recommended. To narrow this gap, more affordable network access devices must be made available, along with increasing network capacity. To ensure South Africans, especially those living in the rural areas can make full use of the benefits of the internet, the project should also include educating people with basic digital skills.

To reduce the difficulties in the use or provision of e-government services, a relevant set of ICT training is needed. ICT training programmes through Sector Education and Training Authority (SETA), Government Communication and Information System (GCIS), and local universities that could scale digital capacity-building efforts should be encouraged by local government.

To improve limited public participation in service delivery, which has caused anger and discontent, community-driven models, such as ward-based help desks and offline kiosks in underserved areas are recommended. With this recommendation, local residents can communicate with the government and participate in policymaking.

8. Conclusion: Reflections on South Africa's digital service trajectory

There is considerable promise for improving public service delivery and increasing transparency through the adoption of e-governance initiatives in South Africa. But because of the ongoing digital gap between urban and rural areas, the development has been unequal. But it also has drawbacks, such as disparities in access to technology, concerns about data security, and the need for further training and capacity building. To maximise e-governance and enhance public service delivery, South Africa must overcome these obstacles.

South Africa has a large gap between its digital objectives and the realities of digital delivery. While the country intends to embrace digital technology to boost economic growth and enhance service delivery, challenges such as the digital divide, insufficient infrastructure, high costs, and a lack of digital skills impede progress. But with the right support and resources, the challenges can be overcome, and South Africa can become a hub of digital innovation and contribute to service delivery and the broader economic development. Future research should evaluate specific municipal case studies or explore citizen feedback on digital platform use in South Africa.

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