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**EXPLORING THE CHALLENGES AND COMPLEXITIES OF E-GOVERNMENT
OPERATIONALISATION IN LESOTHO****Alouis Chilunjika***University of Johannesburg, School of Public Management, Governance and Public Policy, Johannesburg, South Africa**E-mail: chilunjika@gmail.com**Received 28 August 2025; accepted 22 November 2025; published 30 December 2025*

Abstract. The Fourth Industrial Revolution (4IR) has transformed the way institutions and individuals interact and work in various settings. Technological innovations through e-government have paved the way for more accountable, transparent, effective, and efficient governance and service delivery in the Lesotho public sector. This study examines the challenges and complexities of operationalising e-government in Lesotho, utilising qualitative research methods to analyse the barriers and opportunities associated with its implementation. This study employed a systematic scoping review approach guided by the PRISMA 2020 framework. A comprehensive search was conducted across academic databases (Scopus, Web of Science, Google Scholar, and JSTOR), institutional repositories, and policy databases (World Bank, UNDP, and OECD reports). Additionally, government websites and grey literature (including laws, policy documents, and consultancy reports) were included to capture practice-based evidence. The study established that while Lesotho has made progress in digitising some public services, systemic inefficiencies, funding constraints, and weak regulatory frameworks, among others, hinder full-scale operationalisation. Ultimately, the study underscores the need for multi-stakeholder collaboration, capacity-building initiatives, and adaptive policy reforms to realise the transformative potential of e-government in improving public service delivery and governance transparency.

Keywords: Fourth Industrial Revolution; E-government; Challenges; Complexities; Operationalisation; Lesotho

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1. Introduction

With the use of technology, modern citizens today demand more effective and transparent governance. With the advent of innovative services that enhance people's lives and operational efficiency, as well as inexpensive digital access, the Fourth Industrial Revolution (4IR) has revolutionised both the public and private sectors. Artificial intelligence (AI), the Internet of Things (IoT), and big data are among the technologies driving the adoption of e-government, enhancing human development and service delivery (Chilunjika et al, 2022; Mugunzva & Manchidi, 2024; Matlala et al., 2025). With a Human Development Index (HDI) of 0.514 (UNDP, 2021), Lesotho ranks 168th out of 191 nations, highlighting persistent disparities. Technology must be leveraged to enhance well-being, opportunities, and freedoms, thereby addressing these issues (Hunková & Havierníková, 2024). In Lesotho, 4IR's full potential remains unrealised due to a lack of infrastructure and skilled labour, despite offering tools to address developmental issues, including ineffective service delivery. By strategically implementing both disruptive and incremental technologies, these obstacles can be overcome, enhancing quality of life and promoting inclusive growth. By emphasising digital transformation, Lesotho can keep up with international developments and guarantee that its residents enjoy equitable development and simplified services.

The implementation of e-government through information and communication technologies (ICT) presents substantial opportunities for modernising and reforming the public sector (Komarova et al., 2024). Digital platforms enable direct citizen involvement, thereby strengthening governance principles (Kampira & Mukonza, 2025). One significant benefit is encouraging service delivery innovation, which changes the way governments deliver services by making them more sustainable, accessible, and efficient (Khawan, 2021). By fostering fair access to public services, research indicates that these advances are particularly beneficial for underserved areas (Suryapusita, 2025). Systemic governance and administrative problems, including ineffective bureaucracy, a lack of competencies, corruption, and shaky institutional frameworks that jeopardise sustainable development and service delivery, have long plagued South Africa (Monyake, 2019; Vyas-Doorgapersad et al., 2024). These issues have persisted since independence and have led to uneven public services, such as erratic access to healthcare. Inequality is exacerbated by poor governance, which lowers living standards, traps populations in cycles of poverty, and diverts funds away from necessities such as housing, education, and food security (Mamokhere, 2025).

Through lowering corruption, monitoring public expenditures, and enhancing transparency, technology, especially e-government, offers a revolutionary answer (Chilunjika, 2024b; Chilunjika, 2024d; Haurovi & Chilunjika, 2024). Increasing accountability, service effectiveness, and resource allocation—all crucial components of fair development can be achieved through digitising governance procedures. Chilunjika and Chilunjika (2024) assert that a robust e-government framework can equip citizens with dependable access to services, increase institutional trust, and foster an environment of comprehensive progress where public resources lead to improvements in societal freedom and quality of life. Additionally, e-government can encourage innovation and the adoption of technology in Lesotho's public sector, thereby improving institutional outcomes, service delivery, and administration. E-government promotes citizen participation in decision-making through the use of new or enhanced techniques, which in turn fosters accountability, ownership, and responsible resource management (World Bank, 2018). It improves interoperability, fosters synergies among government initiatives, and synchronises investments with national objectives (UNDP, 2020). Standardised data flows and improved information sharing also foster public trust and enhance government agency collaboration, ensuring that services better serve the demands of businesses and citizens.

Lesotho faces significant obstacles typical of underdeveloped nations when implementing e-government, despite its potential (Schuppan, 2009). Significant infrastructural gaps, low levels of digital literacy, and inadequate policy frameworks hamper effective implementation. The ensuing digital divide primarily affects marginalised groups, exacerbating socioeconomic disparities as technological advancements outpace the capacity of residents with lower levels of education to adapt. Cybersecurity threats present further challenges; the public sector in Lesotho is susceptible to advanced threats, including ransomware attacks and data breaches (Chilunjika & Chilunjika, 2024; Chilunjika & Intauno, 2023:16; Kshetri, 2019). Strong legislative frameworks, sophisticated security systems, and extensive expenditures in worker capacity are necessary to address these complex concerns (Chilunjika & Chilunjika, 2024; Alzoubi & Mishra, 2025).

Lesotho presents a representative yet distinct case of a developing, landlocked African nation navigating the implementation of e-government amid complex structural and institutional challenges. Due to the high cost of infrastructure over hilly terrain, digital access is still concentrated in lowland urban centres, particularly Maseru, despite being connected to regional ICT networks (Lesotho National Human Development Report, 2024; Government of Lesotho, 2020). The low internet penetration rate (approximately 30% have mobile Internet) and high data charges (about 7% of monthly GNI) highlight ongoing challenges to affordability and availability (UNCTAD, 2018). Such circumstances reflect broader realities in the Global South, including unequal infrastructure, socioeconomic disparities, and low levels of digital literacy. Furthermore, Lesotho is a concentrated microcosm of e-government restrictions, with political unpredictability, financial limits, and limited institutional capability all coming together to impede progress (Matsieli & Sooryamoorthy, 2021a). While

changing political agendas disrupt continuity in digital programs, the limited ICT skills of citizens and public officials impede system adoption and maintenance (USF, 2017; Khethisa & Mphahama, 2022). Even though donor-funded infrastructure initiatives, such as fibre rollouts and e-government portals, have increased capacity, sustainability and trust are still threatened by reliance on outside assistance and inadequate cybersecurity and data protection frameworks. Due to its unique circumstances, Lesotho provides a valuable example for examining how capacity, governance, and geography impact digital transformation in resource-constrained environments (Lesotho Communications Authority (LCA), 2023). It is against this background that the study explores these barriers and complexities to the full operationalisation of e-government within Lesotho's unique development context.

2. Literature Review

2.1 Definition of E-government

E-government is a mean to enhance citizen access to government services and programs, as well as facilitate citizen-to-citizen information exchange. It entails utilising information and communication technologies (ICTs) to enhance service delivery and improve the efficiency of government operations. The majority of studies also associate e-government with ICT. Successful cases have demonstrated their capacity to reduce bureaucratic inefficiencies and advance participatory government globally (Alzoubi & Mishra, 2025). However, these successes frequently rely on robust ICT infrastructure and regulations that encourage use, which are currently absent in many Sub-Saharan African nations, including Lesotho.

2.2 The Stages of E-government

According to the United Nations e-government worldwide study (UN e-government survey, 2008), there are five stages of e-government. These phases consist of: Stage 1, known as Emerging Presence, in which a nation commits to become an actor in e-government. A few separate government websites that give users static organisational or political information contribute to the establishment of a formal but constrained online presence. Stage 2 - Enhanced Presence: In this stage, a nation's online visibility starts to expand as the number of official websites rises and provides more specialised and dynamic content that is regularly updated. The majority of interactions remain one-way, with citizens primarily receiving information from the government (Chilunjika, 2024d). Stage 3, known as the Interactive Presence, is characterised by a significant expansion of a nation's online presence as it adopts an interactive mode that provides access to a range of government services and institutions. Stage 4 - Transactional Presence: At this point, citizens and the government begin interacting in both directions. Stage 5 - Fully Integrated or Networked Presence - This phase denotes the most developed stage of online e-government projects. This level involves the integration of G2G, G2C, and C2G (and reverse) interactions (Chilunjika, 2024d). Through a two-way, open conversation with society, the government encourages participation and deliberative decision-making.

2.3 Challenges in E-Government Adoption

E-government projects in many developing nations encounter various obstacles that hinder their successful implementation (Chilunjika and Chilunjika, 2024). These obstacles include institutional, technological, sociocultural, and infrastructure-related ones. Lack of dependable infrastructure to enable digital services is a significant problem. This includes low internet usage (especially in rural and isolated locations), erratic electrical supplies, and insufficient hardware and software resources in government agencies (World Bank, 2022). These shortcomings lead to inefficiencies in service delivery and limit access to online services.

A persisting disparity in digital knowledge and skills exacerbates these infrastructure obstacles. Public employees and residents alike often lack the fundamental technical skills necessary to use e-government platforms effectively. Particular challenges are faced by underprivileged communities and older citizens, and a lack of training among government officials often causes the poor adoption and misuse of digital technologies.

Furthermore, bureaucratic organisations' reluctance to adapt keeps them dependent on antiquated paper-based procedures, which delays the shift to digital governance. These difficulties are exacerbated by the digital divide, which disproportionately affects underprivileged populations. Rural communities face challenges related to affordability and connectivity (UNDP, 2021), and low-income and female individuals often have limited access to technology. People with disabilities and non-native speakers are also prevented from fully utilising e-government services due to language difficulties and inaccessible platform designs.

The digitisation of government services raises serious issues about cybersecurity and data privacy. Sensitive citizen information is compromised by threats, including ransomware, phishing, and data breaches (Poshai et al., 2023; Kshetri, 2019), leaving systems insecure and eroding public trust due to a lack of data protection legislation and inadequate cybersecurity frameworks. E-government projects are vulnerable to abuse in the absence of strong protections, which deters public participation. Institutional and policy hurdles also hinder advancement. Critical ICT initiatives are hampered by fragmented policies, inadequate interagency collaboration, and a lack of funding (Chilunjika, 2024b; Government of Lesotho, 2020). Long-term digital transformation is thwarted and implementation is delayed by bureaucratic inefficiencies, such as conflicting mandates and a lack of political commitment (Dunleavy et al., 2006). Another challenge comes from behavioural and cultural opposition. People's mistrust of digital systems, often stemming from past experiences with inefficiency or corruption, leads them to prefer in-person services. Citizens' lack of familiarity with digital alternatives further diminishes engagement due to low knowledge of the advantages of e-government.

2.4 Theoretical Framework

Tornatzky and Fleischer (1990) developed the Technology-Organisation-Environment (TOE) framework, which provides a thorough lens through which to view the obstacles and uptake of e-government in Lesotho. It highlights how the application of innovations is influenced by three interconnected dimensions: organisational, technological, and environmental. ICT infrastructure and digital preparedness are the main topics of the technological background, which also highlights cybersecurity threats, mobile governance platforms, and internet penetration (Poshai et al., 2023; Barkóciová et al., 2023). Lesotho's financial and policy coherence issues make the organisational context, which prioritises institutional capacity, bureaucratic efficiency, governance frameworks, and resource allocation, crucial (Government of Lesotho, 2020).

In conclusion, the environmental context highlights enduring socioeconomic gaps and unequal access to digital services, incorporating broader external issues such as the digital divide, regulatory frameworks, and citizen trust (UNDP, 2021). The TOE framework is especially well-suited for this research, as it offers a comprehensive strategy that incorporates institutional, sociological, and technical aspects, ensuring that obstacles to e-government are not viewed in isolation. The identification of focused initiatives, such as investments in ICT infrastructure, fortification of cybersecurity regulations, and increased citizen participation, is what gives it policy relevance. To contribute to a structured pathway for advancing the implementation of e-government in the nation, this study applies TOE to the context of Lesotho. It does this by methodically analysing problems such as inadequate internet access, weak institutional capacity, and low public trust, and by suggesting solutions that align with each dimension.

3. Methodology

Following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) standards, this study used a systematic scoping review methodology (Page & Moher, 2017). This method was chosen to systematically map the range of available data, identify key ideas, and fill knowledge gaps in the literature regarding the organisational, technological, and environmental challenges associated with the operationalisation of e-government in Lesotho.

3.1 Information Sources and Search Strategy

To find published and grey literature, a thorough and methodical search was conducted. Major academic databases (Scopus, Web of Science, Google Scholar, and JSTOR), institutional repositories, and policy databases from critical international organisations (such as the World Bank, the African Union, the Organisation for Economic Cooperation and Development (OECD), and the United Nations Development Programme (UNDP)) were all included in the search. Government websites and grey literature, such as national laws, policy documents, and consulting reports, were also included to obtain practical, practice-based evidence. A combination of keywords and the following Boolean operators specific to the syntax of each database was used in the search approach: "e-government", "digital governance", "ICT", "public sector", "modernisation", "Lesotho", "Sub-Saharan Africa", and "TOE framework". To guarantee the findings' applicability to the current state of technology and policy, the search was restricted to publications released between January 2010 and May 2024.

3.2 Eligibility Criteria

The following predetermined criteria were used to select the studies:

- Population/Context: Research that specifically focuses on Lesotho or on nations in sub-Saharan Africa that have similar socioeconomic and political environments.
- Concept: According to the TOE framework, literature that discusses the organisational, technological, and/or environmental aspects of e-government acceptance, implementation, or difficulties.
- Source types include policy documents, conceptual papers, systematic reviews, and empirical research.
- Language and Time Frame: English-language publications published from 2010 to 2024.

Duplicate publications, research done outside of Africa, and sources lacking any pertinent emphasis on digitalisation, public governance, or ICT adoption were among the exclusion criteria.

3.3 Selection Process

The study selection procedure used a structured three-phase screening approach in accordance with the PRISMA 2020 flow diagram (Figure 1):

1. Identification: 356 records were identified in the initial search across all the sources mentioned.
2. Screening: 308 distinct records remained after 48 duplicates were eliminated both manually and automatically. 212 records that were unrelated to the study's subject were eliminated after their titles and abstracts were checked against the eligibility requirements.
3. Eligibility: A detailed evaluation of the full texts of the remaining 96 reports was conducted to determine their eligibility. 34 of these were disqualified for various reasons, chief among them being a lack of empirical emphasis, inadequate contextual information, or methodological flaws relating to the research objective.

A final total of **62 studies** were deemed eligible and formed the basis for the qualitative synthesis.

3.4 Data Extraction and Synthesis

A standardised template was used to gather data from the included studies. This template was created to capture essential details such as the author(s), year of publication, study design, geographic focus, primary findings, and particular relevance to the Technological, Organisational, and Environmental (TOE) framework dimensions—a method known as thematic synthesis was employed to analyse the retrieved data. A structured analysis was provided by mapping recurring themes, obstacles, and enablers about e-government in Lesotho onto the three main settings of the TOE framework.

3.5 PRISMA Flow Diagram

The study selection process is summarised in the PRISMA 2020 flow diagram below (Figure 1).

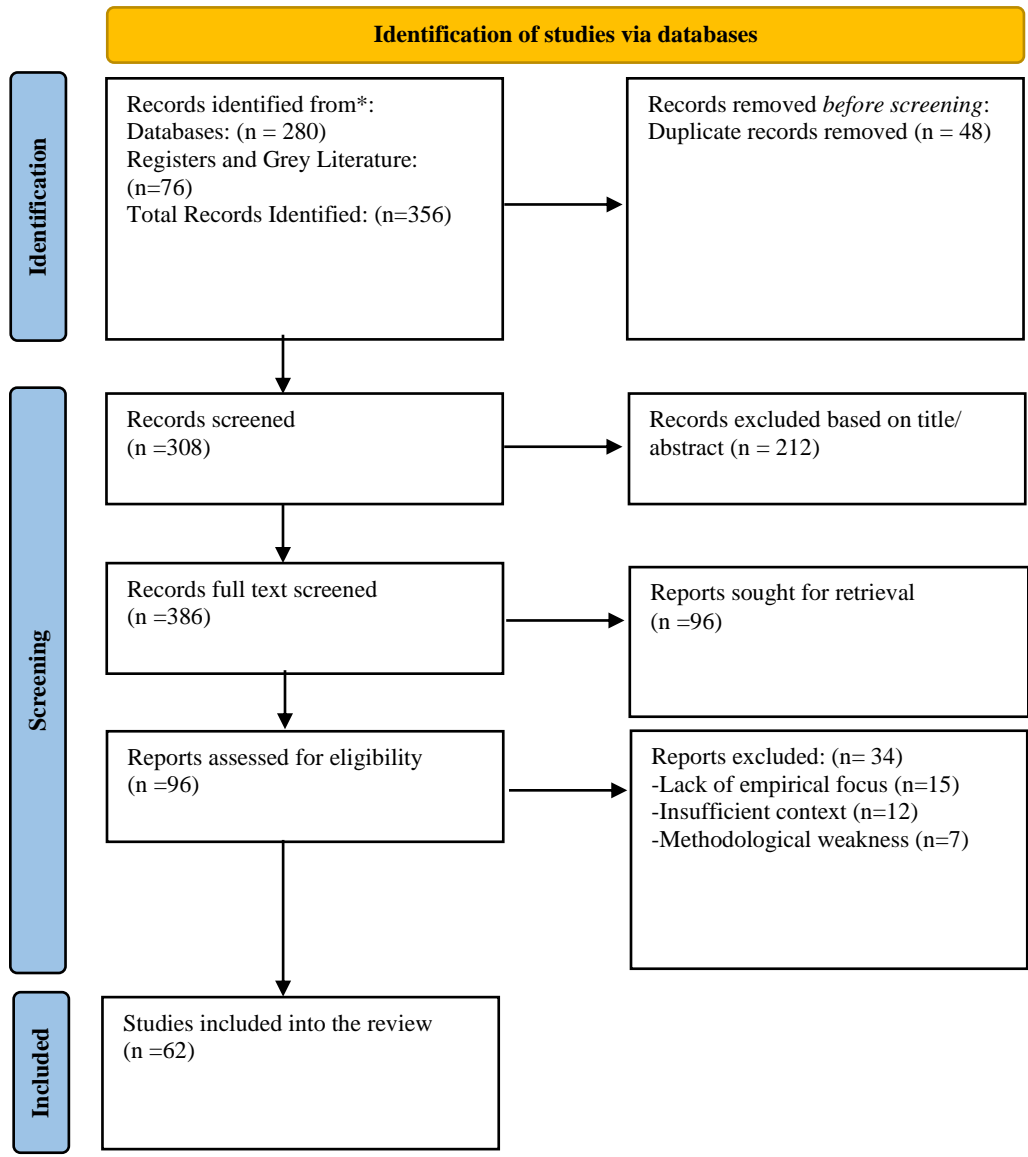


Figure 1. PRISMA 2020 Flow Diagram illustrating the study selection process

Source: Author construction

4. Research Findings

This section unpacks the landscape of e-government in Lesotho. The section unpacks the different forms, types, and manifestations of e-government in Lesotho. The section also examines the challenges and complexities of e-government in Lesotho.

4.1 The Lesotho e-government Landscape

Since it provides the platform for connectivity, access, and delivery of electronic services (e-services), ICT infrastructure is a crucial component of the development of e-health. It encompasses the hardware, software, and structural elements that enable connectedness and interconnectivity. Currently, private companies own the

majority of Lesotho's ICT infrastructure. Because the majority of the present base stations are located in towns, the backbone structure of Lesotho's ICT infrastructure remains inadequate, despite notable advancements.

Fixed and mobile telecommunications, broadcasting, multimedia, and the Internet are all part of Lesotho's e-government sector. These are connected to essential services including banking, e-commerce, and postal services. The usage of ICTs and e-government is critical to the growth of sustainable businesses in the knowledge economy era. Chilunjika (2024a) asserts that although it is generally accepted that technology consists solely of machines, various products, and software, it also encompasses the knowledge and procedures required to create, manufacture, manage, and utilise technological products. Technical expertise and literacy are also important aspects of technology. Lesotho's national framework for innovation, science, and technology is still in its early stages of development. The government spent USD 0.44 million, or 0.01% of GDP, on research and development in 2015. Due to the low level of research and development spending to date, Lesotho's adoption of e-government is still in its early phases (Government of Lesotho, 2020).

However, the government is still encouraging the use of technology for new applications, with a particular emphasis on technical training, to facilitate a rapid transition to climate-resilient agriculture, high-quality healthcare, ICT, digital manufacturing, and the green economy. Building institutional capacity and developing infrastructure were the two main pillars of the Lesotho e-government initiative, which aligned with the Country Strategy Paper (CSP) from 2013 to 2017 and aimed to enhance governance and accountability. Through better governance and the resolution of institutional capacity issues within the government that ICT may help address, this project aims to support the country's objective of achieving a stable democracy. As a result, the project established open access concepts in fibre submarine cable systems and related Virtual Landing Points for the landlocked nation of Lesotho; it also established a metropolitan fibre network and a fibre link from Maseru to Hoek in Maseru; and it installed telecommunications towers in rural areas (Lesotho Human Development Report, 2024). Moreover, cloud computing was utilised, the number of servers increased, data centre capacity and storage were enhanced, and the Government E-Portal was established, housing the national portal, line ministries, and a call centre. Optimising the current metropolitan fibre network connecting ministries and data centres, increasing bandwidth access to submarine cable systems for e-government services, and expanding ICT coverage to four selected rural areas under the Universal Access Program were all necessary for strengthening the core government-controlled fibre network infrastructure.

Accordingly, the installation of telecommunications towers in four specific rural regions has been chosen: Mahlachaneng (Qhoali valley), which borders Lesotho and the Republic of South Africa (RSA) in the Mphaki area, and consists of 11 communities along the Qhoali River towards the Nts'upe range. The Rankakala area has sixteen communities, the Moremoholo Valley has fifteen, and the Botha Bothe tract has eight Motete settlements. There are two schools and a health centre in Motete (Lesotho National Human Development Report, 2024). fortifying the data centres, which included improving their operations, upgrading their software, and purchasing new equipment. Access to government services is another advantage of improving a government site, which benefits all citizens. Fibre was installed across Lesotho Electricity Company (LEC) power lines, and a government-controlled dark fibre metropolitan network was acquired through the Indefeasible Right of Use (IRU) for a period of ten years, which is the lifespan of a metropolitan cable (Government of Lesotho, 2020). To ensure the availability of a connection to the data centre in Hoek, Maseru, the least expensive option in the industry is to construct fibre optic facilities on the LEC power line. To ensure sufficient availability and security, a backup link has been established via a low-voltage power line or the enhanced temporary setup provided by ETL, which utilises telephone poles.

Currently, the government is renting a black fibre network to connect all of Maseru's ministries, including data centre connections. It also has fibre-based access to all of Lesotho's district headquarters. The networks' inadequate setup leads to excessive running expenses. According to the Lesotho National Human Development

Report (2024), a tender for an Indefeasible Right of Use (IRU) of a dark fibre network has been adopted for this project to save costs and create a secure, reliable, and scalable core metropolitan e-government fibre infrastructure. In setting out the metropolitan network ring, this method will optimise the state-of-the-art network configuration, lowering the cost and the number of kilometres of dark fibre run. It will further improve the security of the main government infrastructure network and increase the fibre capacity.

Regarding national and international bandwidth, the government now pays significantly more for international bandwidth than other landlocked nations in the region. Due to heightened competition brought on by the introduction of multiple new underwater cables, prices are dropping quickly. Following the launch of e-services, it is anticipated that the government will require additional bandwidth. According to the Government of Lesotho (2020), a Virtual Landing Point (VLP) was installed as part of the country's e-government infrastructure to reduce international bandwidth costs. An international submarine cable operator's Point of Presence (PoP) is a VLP, which, when deployed in the area, leads to much lower costs because it acts as an open access point for high-capacity international access.

4.2 Challenges and Complexities of e-government Operationalisation in Lesotho

E-government projects in Lesotho face numerous challenges. Generally, these challenges can be categorised as follows:

4.2.1 Infrastructure

Lesotho has a sparse and uneven deployment of e-government infrastructure, despite the deregulation and privatisation of ICT in an effort to increase access to suitable telecommunications. The nation is well-connected in terms of ICT services and infrastructure, thanks to its physical infrastructure, including submarine cables. Only over 30% of people have a mobile internet connection, although about 70% of people own a phone. This is mainly due to the service being expensive (Chilunjika & Chilunjika, 2024). Despite considerable efforts to expand e-government nationwide, ICT development and e-government remain concentrated in the lowlands, particularly in Maseru. According to the Lesotho National Human Development Report (2024), the country has achieved full coverage of a 2G network, 98% coverage for 3G, and 70% coverage for 4G. However, due to Lesotho's hilly terrain, more antennae and associated infrastructure are required for the broader rollout of 4G and future technological rollouts throughout the nation, which would require large expenditures. Despite having more SIM card owners than the population, this led to Lesotho being one of the nations with the most expensive Internet (both fixed and mobile), with a 500MB data package costing about 7% of the nation's monthly Gross National Income (GNI) (UNCTAD 2018). The rural districts of Thaba Tseka, Mokhotlong, Qacha's Nek, and Quthing had the highest percentage of non-Internet users (mobile users) according to the regional distribution of users by district. The lack of infrastructure in such areas, compared to the lowlands, helps to explain this. Since most homes cannot access newspapers, radio, or television, these areas also suffer from a lack of media coverage. In 2017, a Universal Service Fund (USF) survey found that: 20.7% of internet users were constrained by the slow speed of the Internet, and they would use it more if it were fast enough for their needs; 67.5% of people had never used the Internet; 57.1% of people did not know what the Internet was; 59.4% did not know how to use it; and 49.3% did not own a device for accessing the Internet (USF, 2017).

Rolling out e-government nationwide is challenging due to issues including low teledensity and limited fixed-line telecommunications penetration. In Lesotho, this circumstance has led to gaps in e-government services. Several factors cause the gaps. Firstly, a lack of infrastructure makes it difficult for government departments and line ministries to provide high-quality and easily accessible e-government services; secondly, it makes it difficult for Basotho people, especially those living in rural areas, to access e-government services; and finally, poor and unreliable infrastructure is deteriorating the performance of e-government systems, making it difficult for users to obtain high-quality e-government (Chilunjika et al., 2024).

4.2.2 Language Barrier

Additionally, a language barrier prevents the general public of Lesotho from easily accessing government communication channels, including websites and other official platforms. Lesotho's official websites are inaccessible, resulting in disparities between the literate and illiterate populations (Matsieli & Sooryamoorthy, 2021a, 2021b). According to accessibility in the context of e-government, the government has a strong incentive to increase everyone's access to websites and their contents. When it comes to e-government services, language is a significant accessibility consideration. The languages spoken by the local population must be reflected in the language used on official websites. According to the World Bank Group (2017), as of February 2017, Sesotho was a widely spoken language in Lesotho and the mother tongue of over 99.7% of the Basotho country. Sesotho is the primary language spoken by speakers of the other minority indigenous languages, such as Sethepu, Sephuthi, IsiXhosa, and IsiZulu. Therefore, it is not unexpected that Lesotho is referred to as a "monolingual nation" in Sesotho and is nearly a homogeneous country.

Nevertheless, out of all the government websites that were viewed, none of the ministries discussed or featured information in Sesotho. English is used on all of the websites. Section 3(1) of the Constitution of Lesotho, which declares that "The official languages of Lesotho shall be Sesotho and English," promotes and protects bilingualism (Government of Lesotho, 2020). As mentioned above, Sesotho is a commonly used communication medium and the first language of almost 99% of the population (Lesotho Communications Authority, 2017; World Bank Group, 2017). It is surprising, but not unexpected, that Sesotho is not one of the languages spoken on official websites given this background. According to Marlow et al. (2007), people in any nation value accessing public services in their native language, whether it is a preference or a necessity. Government information is more accessible and pertinent when it is presented in a language that the majority of the population can understand. Accordingly, one major obstacle to accessibility is the provision of online material in a language other than the native tongue (United Nations, 2014). It discriminates against those who may not be proficient in English or who typically feel more at ease when information is provided in their native language or languages. Additionally, it undermines the foundation of democracy and e-government by preventing increased citizen involvement in politics and government operations. Therefore, it is unavoidable that the content of the websites must be in a language that the local population is familiar with and can understand to improve citizen involvement and expand accessibility to e-government information and services.

4.2.3 Lack of ICT Skills

Adoption and execution of e-government depend heavily on the human element. ICT expertise is required to improve the deployment and use of digital services after the infrastructure has been established. As a result, several studies have found that one of the primary obstacles to Lesotho's adoption of e-government is a shortage of ICT expertise (Matsieli, 2020; Matsieli & Sooryamoorthy, 2021). According to research by Matsieli and Sooryamoorthy (2021) on essential success elements in the adoption of e-government in Lesotho, government employees lack the necessary skills to design, run, and maintain e-government systems. As a result, a lack of skills among the general public impedes Lesotho's e-government readiness, digital economy development, and e-government acceptance and operationalisation. The main barrier to Internet use in Lesotho is, for the most part, a lack of digital literacy.

4.2.4 Interoperability Challenges

Interoperability in the context of e-government refers to the capacity of government systems and organisations to exchange information and communicate with one another. Interoperability is both a governance and a technical issue. The majority of e-government technologies in use in Lesotho function in "silos," which are specific departments or ministries that lack a typical architecture that enables seamless data sharing and communication. The government may struggle to maintain a unified perspective on its citizens for efficient service delivery, for instance, if a database in the Ministry of Health is incompatible with one in the Ministry of Home Affairs, requiring citizens to input the same information repeatedly. A significant obstacle to enjoying the benefits of e-

government that have been promised is this fragmentation. Increased efficiency, decreased redundancy, better policy-making based on integrated data, and a seamless experience for citizens are among the key benefits; however, without interoperability, they remain "merely a delusion" (Matsieli, 2020). The governance structure as a whole is ineffective, even if individual systems are modernised, due to the absence of interoperable frameworks. In addition to technical standards, robust interdepartmental cooperation and data-sharing agreements are necessary for achieving interoperability, which can be challenging to develop in a disjointed political and administrative context.

4.2.5 Security and Privacy Concerns

One of the key factors influencing the adoption of e-government is the concern for privacy and security. This is because the adoption and use of e-government platforms necessitate several laws to regulate online behaviour. The lack of explicit regulations addressing security and privacy when utilising digital technology in Lesotho is a serious concern raised by this study. It was determined that there is a lack of necessary legal frameworks, political will, and the ability to address ethical issues, including data ownership, security, and privacy, as well as consent to use personal data. Additionally, the nation is not immune to cyberattacks (Chilunjika et al., 2024). The most frequent cyberattacks include: application service attacks, in which the computer system's software applications are compromised and cause malfunctions; web interface attacks, in which the attacker gains access to the web interface by using weak or insecure authentication protocols, compromising device integrity and potentially causing denial of service; network attacks, which disrupt device-to-device communication and cause message delays or loss; and data integrity attacks, which modify system data by adding, changing, or erasing stored data or data in transit. Phishing, unauthorised access to data sources, data alteration and destruction, website defacement, malware and virus attacks, and other malevolent actions by attackers are additional concerns (Blašková et al., 2024). There have been reports of cyberattacks that resulted in the hacking of the online networks of the Lesotho government. Given the seriousness of these attacks, robust cybersecurity measures are necessary to enhance data and system safety and integrity, ensuring Lesotho's effective and efficient service delivery.

4.2.6 Funding Constraints and Donor Dependency

Due to the capital-intensive nature of e-government initiatives, significant and consistent financial commitment is necessary. According to research, the Lesotho government lacks the domestic financial resources required to fund these programs adequately. Government organisations often lack sophisticated, contemporary IT infrastructure, including dependable servers, secure networks, and up-to-date software, which are essential for delivering reliable online services. This persistent underfunding has a direct effect on the ground. As a result, Lesotho has traditionally relied heavily on donor assistance to launch and sustain its e-government initiatives (Lesotho Communications Authority, 2017). Donor organisations and foreign partners have largely funded programs for infrastructure development and capacity building. However, there are risks associated with this reliance. Accordingly, the COVID-19 pandemic severely strained international aid budgets, leading to the reduction or withdrawal of financing from numerous donor organisations. Many e-government initiatives have been put on hold as a result of this abrupt withdrawal of external funding, underscoring the dangers of basing a national digital transformation strategy on external, frequently erratic funding sources. As a result, programs rarely reach a national scale or achieve sustainability, instead remaining in a state of pilot or partial implementation.

4.2.7 Digital Divide and Low Literacy Rates

In Lesotho, the digital divide is a complex and ever-evolving issue that creates service gaps, particularly in the use of e-government services. The disparity between citizens with and without internet access is what it is. People in rural and urban areas in Lesotho have limited or no access to digital services, which is reflected in the country's digital divide. Additionally, it highlights the gender digital divide, with Basotho men having greater access to the Internet than Basotho women (Lesotho Communications Authority, 2017). In Lesotho, the digital divide is considered a significant obstacle to the adoption of e-government, as many rural residents and some women lack access to ICT devices and the Internet. In addition to widening the digital divide in Lesotho, low literacy rates

among rural residents run against the fundamental principles of e-government. City dwellers in Lesotho are typically more tech-savvy and literate, making them more likely to use and access online public services and information. However, people in rural areas are more likely to be illiterate, which means they lack ICT skills and knowledge and are more likely to oppose e-government platforms as models for service delivery. The reason behind this is that residents who possess literacy skills can recognise the potential advantages of e-government services in their daily lives.

On the other hand, the Lesotho National Human Development Report (2024) noted that individuals lacking literacy tend to have unfavourable opinions about e-government platforms. The goal of these advances is undermined by illiteracy, which lowers citizens' trust in actively using e-government platforms. The demand for ICT increases with a society's level of education. Another element impeding the efficacy and efficiency of e-government in Lesotho is the gender digital divide. In general, Lesotho is a patriarchal society, which affects how women in the digital age exercise their rights (Government of Lesotho, 2020; Lesotho Communications Authority, 2017). Despite Lesotho's progress in eliminating gender inequality, women were found to have less overall access to digital technology than men. This is especially noticeable among rural and impoverished women. Certainly, women can access health, education, and other social and financial services if they are empowered (Chilunjika et al., 2024). It might also be a potent instrument to enable women and girls to produce pertinent content for empowerment, associate, assemble, and express themselves on topics related to digital rights that are important to them, as well as to engage in governance. Therefore, it is necessary to establish laws and regulations that will enable Basotho women and girls to get meaningful access to the internet and e-government services.

4.2.8 Complex Political Dynamics and Institutional Instability

Although Lesotho has made significant strides to enhance its ICT and e-commerce business environments, these initiatives have frequently been hindered by the nation's complex political landscape, which has resulted in numerous government transitions that have prevented the adoption of robust laws and regulations. The research provides strong support for the claim that one of the main obstacles to e-government in Lesotho is political instability. A trend of coalition governments has marked the political landscape of Lesotho, with numerous no-confidence votes and leadership changes, according to the Lesotho National Human Development Report (2024). Long-term strategic initiatives, like e-government, are particularly vulnerable in this atmosphere of volatility. However, with every new administration, it has been observed that policy priorities frequently change due to frequent changes in government, resulting in the abandonment or redesign of ongoing initiatives. This breaks continuity, wastes resources, and hinders the momentum of complicated digital transformation (Matsieli, 2020). The implementation of projects initiated by past governments is hampered by this political climate, resulting in a disjointed and uneven national ICT policy.

Conclusion

This study highlights the transformative potential of e-government in improving state-citizen relations, enhancing public service delivery, and strengthening governance transparency in Lesotho. However, despite some progress in developing ICT infrastructure, the operationalisation of e-government initiatives remains limited by several factors. On the technological front, the efficiency of digital platforms is hindered by limited internet penetration, weak system interoperability, and growing cybersecurity vulnerabilities; on the organisational front, bureaucratic inefficiencies, a lack of digital literacy among civil servants, and ongoing funding shortages have prevented the public sector from fully embracing digital innovations. Lesotho's low Human Development Index (HDI) score (UNDP, 2021) reflects systemic injustices that exacerbate the digital gap, especially in rural and underdeveloped areas. The issue is further made worse by weak policy frameworks and disjointed institutional coordination. Cybersecurity risks and the lack of thorough data protection regulations also erode public confidence in e-services, highlighting the urgent need for legislative and capacity-building reforms.

The study concludes that to fully realise the transformative potential of e-government, especially in terms of improving public service delivery and bolstering governance transparency, multi-stakeholder collaboration, capacity-building initiatives, and adaptive policy reforms are essential. By uniting government, business, academia, and civil society players, multi-stakeholder collaboration ensures that reforms have greater traction and resilience by fostering shared problem-solving, reciprocal learning, and institutional buy-in. Cross-sector strategic alliances also improve resource sharing and long-term digital services, particularly in settings with limited financial and technical resources. Furthermore, increasing awareness, facilitating adoption, and equipping implementers and citizens to interact with the e-government system efficiently all depend on capacity-building, which is accomplished through educating public officials, fostering digital literacy, and improving technical competencies.

To ensure that e-government initiatives remain relevant and responsive to evolving socio-political and technological contexts, adaptive policy reforms that incorporate iterative review and inclusive stakeholder feedback are crucial. The Lesotho government must also make investments in infrastructure, such as stable energy and broadband expansion, and enhance digital literacy through targeted training and education initiatives. Building confidence requires bolstering cybersecurity safeguards and legal frameworks; enhancing policy coherence and interagency cooperation can expedite their implementation. To close the digital divide and guarantee accessibility for all individuals, inclusive design principles must be implemented. The stated advantages of efficiency, openness, and accessibility could be lost if these steps are not taken, leaving e-government projects underutilised. For digital transformation to be effective, future initiatives must prioritise adaptable governance, sustainable funding, and stakeholder engagement. The full potential of e-government in developing nations requires a comprehensive strategy that incorporates institutional, technological, and societal aspects.

The innovation of this study is not in identifying new obstacles, but rather in its context-specific analysis of how the distinct geography, politics, and socioeconomics of Lesotho exacerbate common e-government issues. This illustrates how hilly geography drives up infrastructure costs by necessitating “more antennae” and producing costly data, 500MB costs over 7% of monthly GNI (Lesotho National Human Development Report, 2024, as referenced in Chilunjika, 2024). When funding changes, donor-dependent programs halt, making this geographic restriction even more vulnerable. Policy continuity is also severely hampered by political instability, which leads to the abandonment or redesign of ongoing initiatives. Although 99% of the population speaks Sesotho as their first language, the study highlights a significant and often overlooked socio-linguistic exclusion: websites that use English exclusively (World Bank Group, 2017). According to the Lesotho National Human Development Report (2024), it also presents a digital gap that is stratified by geography, gender, and literacy, with low literacy feeding unfavourable opinions about e-government. These findings, which present Lesotho as a microcosm, offer other small, landlocked countries essential lessons on how to create practical and suitable digital governments.

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