International Journal of Social Science Research and Review

http://ijssrr.com
editor@ijssrr.com
Volume 7, Issue 3
March, 2024
Pages: 1-19

The Role of E-Government in the Promotion of Municipal Service Delivery in South Africa

C Mohale

Department of Public Administration, University of Limpopo, South Africa

E-mail: callymohale@gmail.com

http://dx.doi.org/10.47814/ijssrr.v7i3.1992

Abstract

The advent of the fourth industrial revolution necessitates that government institutions move away from the traditional paper-based system to an electronic system. Many countries in Africa, including South Africa, have adopted the e-government system as one of the main delivery channels for municipal services and information to society (Mafunisa Consulting, 2021). However, despite the government's ability to establish a new public service model where all government agencies provide their constituents with modern, streamlined, and seamless services (Norris and Moon, 2005). Municipalities in South Africa are regarded as entities that provide direct services to the citizens, however are not financially self-sufficient and often lack the necessary infrastructure such as ICT infrastructure to carry out their duties to deliver e-services to the society at large (Development Bank of South Africa, 2023). Many people in rural areas are affected by the lack of ICT infrastructures and basic digital literacy to enable the participation and accessibility of digital services. Therefore, for the society to participate in e-government, it should be proficient with ICT skills, assisted by the availability of ICT infrastructure within their area. As a result, these people are left out of the participation of e-government services due to the complexities associated with the lack of ICT infrastructure. Because the ICT infrastructure is the backbone and a critical component for implementing the e-government system to ensure digital public administration. Therefore, the study examines the role of e-government in the promotion of municipal service delivery within the South African public sector environment. The main objective of the study is to establish the best electronic government mechanisms that will help the South African government in delivering sustainable services. The study adopted a qualitative research methodology with specific reference to a conceptual approach based extensively on secondary data.

Keywords: *E-Government; ICT Infrastructure; Internet Connectivity; Service Delivery*

1. Introduction

Over the past decades, the scope of the Organization for Economic Cooperation and Development has increased considerably, with countries around the world discussing the administrative reforms in public administration relating to the use of technology in the public sector (Lallmahomed, Lallmahomed, and Lallmahomed, 2017; Fernandez, Fernandez, Hidalgo, Aliaga and Fuster-Guillen, 2023). The discussions focused mainly on finding new ways of creating links between governments, administrations, and society, through which technology can be used to improve the provision of services (Loza, Ortega, and Manzano, 2022; Pham, 2023).

The electronic government system emerged in the 1990s led by the search for implementing new technologies that will be used to support government activities and processes (Pinach, Cruz, and Valencia, 2020). According to Mensah, Zeng, and Mwakapesa (2022: 1), "the concept of e-government was created because of the difficulty inherent in traditional government services, which required its modernisation through ICT, as it was a much better option for governments". However, Rodriquez-Roman (2021) believes that this was due to the paradigm shift toward a knowledge society and the use of information and communication technology (ICTs) with the potential to facilitate the efficiency of public administration concerning the provision of municipal services.

Countries such as China, European Union, Indonesia, Pakistani and the United States of America have used e-government as a guiding mechanism to provide efficient service delivery to support administrative processes and increase efficiency in the public sector (European Commission, 2016; Lu, 2018; Ariesmansyah, Azka, Yuliansya, Artini, and Prasetya, 2022; Ur Rehman, Turi, Szyrocka, Alam, and Pilar, 2023). African countries have also made improvements to the electronic government system. Kenya being one of the countries with relatively better performance in the provision of public services, has succeeded in expanding ICT capacity, installing digital infrastructure, and promoting the use of digital technology in local municipalities to improve the provision of municipal services (Kashaija, 2022). Nigeria also developed a National Information Technology strategy to make Nigeria an IT-capable African country, which has led the country to receive 997.49 billion naira in revenue in the fourth quarter of 2020 (Oghuvhu, Gherevbie, and Oni, 2022).

However, Zambia implemented an e-government system without a specialised strategy in place, leading to the e-government capacity accumulated with only a 0.76 index, which is below many other African countries such as Zimbabwe, Congo, and South Africa (Nokele and Mukonza, 2021). With Botswana currently considered one of the ICT suppliers in sub-Saharan Africa, it is still lagging Tanzania, South Africa, and Lesotho due to the absence of formal e-government strategies (Nokele and Mukonza, 2021). As a result, this indicates that many e-government initiatives have not been fully implemented, especially in developing countries (Kanaan *et al*., 2023); with approximately 60% to 80% of e-government projects not producing the expected results (Sonnenberg, 2020).

In South Africa, since the 1960s, the government has invested extensively in information and communication technology to automate government services to be more accessible to the citizens (Singh 2014). According to Mzekandaba (2022: 1), "South Africa spent approximately R233.8 billion on ICT investments to ensure efficient service delivery". As the provision of municipal services, be it digital services, depend on the institutional capacity of the government to modernise the functioning of administrative institutions to ensure efficient digital public administration (Atkinson and Leigh, 2003; Klaric, 2023). Statistics South Africa (2020) states that about 36.54 million people use the Internet, while 34.93 million use mobile networks to access municipal services.

Nokele and Mukonza (2021) have shown the benefits and effectiveness of the e-government system in ensuring the accessibility of municipal services digitally in areas such as applications of identity documents; birth and marriage certificates; paying of water and electricity services bills; transacting of

SARS e-filling tax services and application of Social Relief of Distress grant as well as other social services. Blom and Uwizeyimana (2020) point out that most people in South Africa have the means to access e-services using mobile devices. However, Cloete (2012) opines that digital public administration should be seriously considered in developing countries such as South Africa, not only to strengthen the country's institutional capacities but also to improve the provision of services to citizens.

Therefore, we consider that there are various e-government programs used by the government to provide e-services to different population groups. This proposed study aims to adopt (G2C: Government to Citizens e-Government Approach) to investigate the authenticity of the e-Government system to enhance the provision of municipal services in rural communities.

2. Problem Statement

Given the means of communication of the traditional paper-based system, which required citizens to physically encounter government officials to receive and access government services. Followed by the system that is characterised by transactions that involve manual physical filing. Burdened by the enormous movement of correspondence and general inefficiency of operations, which mostly delays the provision of services (Mutula, 2008). The E-Government system became the well-suited strategy to help South Africa transform its provision of services in all spheres of government using technology. Where all members of society can access municipal services digitally, such as housing; water; electricity, and refuse collection, without visiting government facilities.

In achieving this goal, South Africa implemented several legislative frameworks and policy instruments to provide a guideline and support for the implementation of electronic government. The electronic government system has proven to be successful as it was able to achieve positive results in various electronic government projects, such as the e-procurement system; SARS e-filing system; e-Natis; and e-Hanis, as well as SASSA, to speed up grant distribution (National Traffic Information System, 2008; Mutula and Mostert, 2010; South African Revenue Services, 2013; South African Social Security Agency, 2022). Currently, due to the COVID-19 pandemic, most countries, including South Africa, have been pursuing digital government strategies in terms of providing services to citizens. During this period, the government successfully managed to employ poverty alleviation programs such as the Social Relief of Distress Grant and the Food Relief Program, which were accessed online.

However, despite the system of e-government being proven to be successful, not all members of society can receive and access services digitally. Due to the inability of Internet coverage in rural areas to support the access of e-services. According to the Independent Communication Authority of South Africa (2022: 12), "Limpopo province has the lowest proportion of households with internet connectivity represents only 1.5%". The Internet and broadband infrastructure are difficult to penetrate in rural areas, which makes it challenging to maintain equal access to municipal services in this region (Velaga, Beecroft, Nelson, Corsar, and Edwards, 2012; Aruleba and Jere, 2022). This, together with the history of ICT policies that did not address the needs of all people in the society due to the apartheid regime, has distorted how the ICT infrastructure is established in South Africa (South African Government Annual Report, 2002).

The digital divide attributed to the lack of basic digital literacy in rural areas has exacerbated the problem. Most people in rural areas do not have sufficient ICT skills and devices to allow proper access to digital services. In addition, very few services are digitalised, leading to lower usage of e-government services in rural communities. Therefore, given these circumstances, it is imperative to determine the authenticity of the e-Government system in promoting the provision of municipal services, particularly in rural communities.

3. Methodology

The study adopted a qualitative research methodology with specific reference to a conceptual approach, based mainly on secondary data. The study reviewed several existing relevant documents on e-government that used textbooks, published journal articles, books, legislative frameworks governing e-government, and other related mass media reports.

4. Theoretical Literature

The study is grounded in the following theories, the Unified Theory of Acceptance and Use of Technology (UTAUT), and Kurt Lewin Change Management Theory. The two theories are adopted because they complement each other, which will help to give a broader understanding of the phenomena investigated in this study.

The study adopted the UTAUT theory to describe the behavioural intention of members of society toward acceptance and the use of technology. The electronic government system requires society to be more proficient in terms of technology to efficiently deliver municipal services to society electronically. This has been done to assess whether members of society are motivated to accept the use of technology due to the gains associated with the ease of use of the system. The study also used Kurt Lewin change management theory to indicate how the South African government system has evolved from the traditional paper-based system to an electronic system, particularly in improving the state of service delivery.

4.1 The Unified Theory of Acceptance and Use of Technology (UTAUT)

Originally, the Unified Theory of Acceptance and Use of Technology was developed through the combination of eight reviewed models by (Venkatesh, Morris, Davis, and Davis, 2003). These are the theory of reasoned action, the technology acceptance model, the motivational model, the theory of planned behaviour, a model combining the technology acceptance model and the theory of planned behaviour, the PC usage model, the innovation diffusion theory, and the social cognitive theory. The limitations identified from these models triggered the need to develop the UTAUT theory. The theory has been used in other studies to assess the influences of technology-related factors on the adoption of machine learning (Cheng-Min, 2019). In this study, the theory is adopted to assess the behavioural intentions of the members of the society and the government system on the acceptance of the use of technology, which will be discussed in detail below.

4.1.1 Performance Expectancy Theory

Marikyan and Papagiannidis (2023) defined performance expectancy as the degree to which members of society believe that the use of technology will help them achieve gains in accessing government services through the system of technology. Sewandono, Thoyib, Hadiwidjodjo, and Rofig (2023) point out that members of society and government institutions will use the system of information and communication technology if the system can help to improve their performance, be it in the government departments or the municipal sphere of government to deliver municipal services to the society at large. Jakoet-Salie (2020) postulates that currently, more and more people rely on technology to access information and government services that help them enjoy a better quality of life. Therefore, information technology is increasingly present in the public sector today. Therefore, this is consistent with the unified theory of acceptance and use of technology. The theory indicates that people or government institutions are motivated to adapt to a new system of technology if the system yields better results and simplifies their performance when engaged with societal and governmental services.

4.1.2 Effort Expectancy Theory

Effort expectancy denotes the degree of ease in using the system of technology (Musakwa and Petersen, 2022). urRehman, Yaqoob, Salah, Imran, Jayaraman, and Perera (2019) believe that if the society at large fails to see the ease of the use of technology, this will lead to the failure of the adoption of technology.

Concerning this theory, the Constitution of the Republic of South Africa (1996) states that it is the responsibility of the government to create an environment in which people can access social and economic rights and alleviate any obstacles and challenges faced by such an environment. However, South Africa, as a developing country, is still affected by many challenges in providing electronic government services predominantly in rural areas (Jakoet-Salie, 2020). According to Murenzi and Olivier (2017: 144), "notes that with the growth of public information and services moving online, there will be an increasing concern that a large part of the population, particularly the rural population, will be disconnected from government information and municipal services".

Blom and Uwizeyimana (2020) believe that the ability to provide e-services to citizens is important in most rural areas in South Africa, where there is a limited transport infrastructure to promote traveling, making the accessibility of services to government offices difficult and expensive. As many people will be discouraged from using the e-government platforms, this further fuels discontent among the citizens (Jakoet-Salie, 2020). The effort expectancy theory is related to this study because it emphasizes that if people cannot perceive ease of use and access to technology, they will be discouraged from accepting and embracing the new technology system.

4.1.3. Social Influence Theory

The social influence theory includes the degree to which society is motivated to accept the use of technology, mainly if others have already adopted its use. Dakduk, Santalla-Banderali, and Siqueira (2020) and Rahman, Alam, and Taghizadeh (2020) agree that governments and members of society depend on the opinion of others and their social environment to adopt the use of technology. In this regard, the theory of UTAUT postulates that people, businesses, and governments are more influenced by others in adapting to the new system of technology.

South Africa is following the example of many governments around the world using e-services to perform their tasks in a secure, reliable, and cost-effective way (Blom and Uwizeyimana, 2020). If not all, one of the countries that the government of South Africa has emulated is Estonia, with approximately 99% of public services including municipal services accessible online 24/7 through self-service apps that have transformed the Estonian government system into a digital government system (Public Service and Administration, 2019). As a result, South Africa has been motivated to forge the same path and has been successful in other areas of initiating the e-government system.

Therefore, this theory of social influence is in line with the study, because it states that people or governments are motivated and depend on others' successes, given the results achieved using technology. In this regard, this is the same as South Africa and its people, who have now extensively tapped into the global community of electronic government, specifically in urban cities. Bajunaied, Hussein and Kamarudin (2023) state that this theory of social influence could be considered as an important factor in UTAUT, supporting government and society's behaviour that could reflect compliance, identification, and internalisation.

4.1.4. Facilitating Conditions Theory

The theory of facilitating conditions refers to the extent to which people believe that the government-based technical infrastructure exists to support the use of the system of technology that will help improve the provision of service delivery (Marikyan and Papagiannidis, 2023). People believe that the availability of ICT infrastructure to enable access to e-government services online will motivate them to accept the use of technology (Lehmann, Blumschein, and Seel, 2022). According to Jakoet-Salie (2020: 1), “opines that poor service delivery in South Africa has become a norm and has subsequently exerted considerable pressure on the provision of effective services to communities”. Given that social unrest is the dominant channel of communication with the government in addressing citizen grievances in terms of poor services delivered, people believe that with the advent of information and communication technology, government services can now be improved.

Thus, with the advent of the fourth industrial revolution (4IR), technological development holds enormous possibilities that can help the government deal with the challenges of service delivery. Given these circumstances, the theory of facilitating conditions is relevant to this study because the purpose of the study is to portray or rather bring into reality that, with the system of technology, municipal services can be improved. As this will assist the government in realising that changing from a traditional paper-based document system to an electronic system in government institutions where paper records are outdated is a way to go in improving the provision of services in the country.

4.2 Kurt Lewin Change Management Theory

The model of change management theory, which consists of three distinct stages of change, was developed by (Lewin, 1947). This is a simple theory with a framework that is easy to understand. The theory has been adopted in other studies such as (Mahmud, Baharun, Asykur, and Rochmatin, 2022) to assess the professionalism of teachers in teaching and learning using electronic devices such as laptops and internet networks to improve the proficiency of teachers to meet the competencies needed in this digital age. The theory describes the stages in carrying out the planned change process in helping the government system achieve long-term improvement for public service delivery through technology (Mellita and Elpanso, 2020). Kurt Lewin introduced a planned three-stage change model, unfreezing, changing, and refreezing, which are discussed below in detail:

4.2.1 Unfreezing Theory

According to Lewin's theory, the first step in the process of change is to identify the need for change (Mahmud, Baharun, Asykur, and Rochmatin, 2022). This includes finding new ways that will make society or the government give up an old system that was obsolete and counterproductive (Kaminski, 2011). The aim was to move from traditional paper-based document systems to electronic systems, where paper trails were outdated.

The South African government recognised the need for change and the need for a comprehensive program approach involving common visions and strategies to guide the initiatives of electronic government adopted to revolutionise South Africa into a completely digital society (Jakoet-Salie, 2020). Where all members of the society can benefit from the system of technology. According to Kanaan, Hawamleh, Abulfaraj, Al-Kaseasbeh, and Almu-hannad (2023: 187), 'The use of e-government can reduce the need for face-to-face public service while making government work processes more transparent and efficient'. Therefore, the unfreezing theory of Kurt Lewin’s model is in line with this study because the implementation of an e-government system contributes to reducing administrative costs with electronic documents, enabled by information sharing between ministries (Kanaan *et al*., 2023).

4.2.2 Change Theory

The second stage of Lewin's theory is change. This stage is important to start the change process that is in line with the direction of the government's desired goal. To achieve this objective, the government implemented new policy structures that should be used to achieve the desired change to improve the provision of services in all spheres of government (Joseph, 2002). In 1995, the White Paper on the Transformation of the Public Service was established to implement guidelines for the transformation of public service delivery (Department of Telecommunications and Postal Services, 2017). In 2001, the Department of Public Service and Administration (DPSA) drafted the first document on e-government, titled Electronic Government, the Digital Future: A Public Services IT Policy Framework (Department of Public Service and Administration, 2001). To achieve the first version of the Minimum Interoperability Standard (MIOS) for public-sector ICT systems (Malomane, 2021).

Between 1994 and 2016, the South African National Department of Public Service and Administration (2022) established a set of policies aimed at providing electronic government services to people in all economic sectors. These included the Public Service Act of 1994, the State Information Technology Agency (SITA) of 1999, the Electronic Communications and Transactions Act (ECTA) of 2002, the Batho Pele Gateway policy of 2004, the Information Society and Development Plan (ISADP) of 2007, the E-Government Framework of 2012 and the National Integrated Policy White Paper (NIPWP) of 2016. Currently, the government has developed a national e-government strategy and road map for the digitisation of government services to optimise the provision of services, providing universal access to government information and services in South Africa (DTPS 2017, PSA 2019, Blom and Uwizeyimana, 2020).

Furthermore, to empower and capacitate public servants, South Africa introduced basic ICT skills projects such as the Golaganang project, which was set to provide basic digital literacy to public servants using ICT in the workplace to address the challenge of the ICT skills shortage (Mutula and Mostert, 2010). As Ngcamu (2019) states, one of the low levels of e-government services is as a result of insufficient digital technology expertise and poor leadership among the public service providers. Given this circumstance, this indicates that this change theory is concerning this study, in that for every change to take place whether in the public or private sector. New structures and policies must be implemented to adapt and guide the establishment of the changed process.

4.2.3 Refreezing Theory

The final stage of Lewin's theory is refreezing, which involves stabilizing the new change into a new set standard (Mahmud, Baharun, Asykur, and Rochmatin, 2022). Thus, in the absence of steps implemented to sustain and reinforce the enacted system, the previously dominant system tends to reaffirm itself.

In relation to this theory, there have been some notable successes of e-government initiatives that have benefited the citizens and are now adopted as the standard procedure for facilitating government services to the citizens. In this regard, the Independent Electoral Commission (IEC) has successfully developed an electronic procurement system for government tenders, allowing suppliers to interact online with the IEC through the system (Mutula and Mostert, 2010). Another successful electronic government project is the South African Revenue Services (SARS) e-filing system, introduced in 2001 to facilitate the electronic submission of income tax returns and payments by taxpayers (South African Revenue Services, 2013).

In addition, the electronic National Traffic Information System (e-NaTIS), developed by the Department of Transport, is a terminal-based system that operates several activities, such as the registration and licensing of motor vehicles, the issuing of learners and driving licenses, registration of vehicle testing stations, and the infrastructure number of traffic officer (National Traffic Information

System, 2008). The refreezing theory of Lewin's model is in line with this study, as it outlines that for every new change system adopted for efficient service delivery, the set standards and procedures must be put into practice for the benefit of digital public administration.

5. Literature Review

The literature reviewed in this study covered the basic introduction of the e-government system, the role of e-government, the benefits of e-government, and the challenges of e-government.

5.1 The Basis Introduction of E-Government System

In the early 1990s, the United States of America became the first country in the world to initiate the concept of e-government, taking the first tentative steps toward reforming the entire public administration system through the system of technology (Kassen 2015; Pinach, Cruz, and Valencia 2020). Today, the United States is a global leader in the field of e-government. As a result, the first discussion on initiatives to develop national strategies to implement information technologies in public administration began in the United States, both in universities and public institutions. However, despite the US being the first to introduce the system of electronic government, the concept of regulating the use of information technology in different areas of public administration was introduced only 20 years later. President Bill Clinton and Vice-President Albert Gore proposed a special plan to promote the use of new information technologies throughout the federal government to promote the national economy (Kassen 2015; Adnan, Ghazali, and Othman, 2022).

According to Chetia (2019: 2), "the increased use of information technologies by governments gave rise to the foundation of e-government throughout the world, with the advent of the World Wide Web (WWW)". This enabled people to retrieve information and access online services from government departments and corporate institutions to aid in their civic, professional, and personal lives (Chetia, 2019). As a result, this provided an array of evidence that e-government can successfully minimise the high level of bureaucracies and reduce the administrative burdens in the provision of public service.

In 2002, during the UN address on e-Governance, five categories used for measuring the progress of e-Governance were presented (Savic, 2006). These included emerging websites available to provide static information; enhanced websites, which are provided to conduct maintenance and updates specifically on the growing number of web pages that are offering dynamic information; interactive websites, available to communicate and allow exchange of information electronically between users and government; transactional websites, available to process financial services such as purchases of licenses as well as the payments and filing of tax returns and websites integration, available for sending or receiving information from another application, system, or website (Savic, 2006). Given this progress, nations around the world began to adopt the initiative and develop their planning and strategies toward e-government, which led the initiative to be widely used by many governments across the globe.

Similarly, in South Africa, the government recognised the importance of establishing an information society by using ICT to promote the economy and social development of citizens (Lee and Baskerville, 2003; Galushi and Malatji, 2022). As a result, various policy frameworks and strategies have been established to guide the implementation of electronic government. In 1995, the White Paper on the Transformation of the Public Service was established to implement guidelines regarding the transformation of public service delivery (Department of Telecommunication and Postal Services, 2017).

In addition, the Department of Public Service and Administration (2017) developed the Batho-Pele principles (people first), which are considered and respected for the e-government initiative focusing on improving service delivery. And change the government system from the traditional paper-based

documentation to the system of technology. With that said, the Presidential Review Commission (1998) made a recommendation on the use of technology in public service delivery and adopted e-Government as an instrument for enhancing the standard of service delivery.

Given this circumstance, the PRC further made a recommendation for the establishment of the State Information Technology Agency in South Africa to rationalise IT procurement for the provision of IT-related training and ensure the effective use of IT in government institutions (PRC, 1998). However, due to poor oversight, the agency did not achieve the goals it was obligated to achieve (Malomane, 2021). As a result, this led to a wide range of policies and structures that are currently operational to provide support and guidelines for the achievement of e-government initiatives in South Africa.

5.2.2 The Role of the E-Government System in Promoting the Provision of Municipal Services in South Africa

E-Government has been heralded as a way forward by many governments around the world to achieve efficiency and better service delivery to both citizens and businesses (Bojang, 2019). And that has made e-government not just an option but a necessity for countries aiming for better governance. In carrying out this initiative, South Africa accepted the imperative of e-government as a platform of public services (Cloete, 2012). In 1999, South Africa adopted the e-government program to transform government-society interaction from paper-based to electronic-based system (Cloete, 2012). In this regard, it should be noted that the e-government program has been successful and has played an important role in improving the provision of services in other areas of the government.

The successes of e-government included e-Natis, an electronic government initiative for the application of driving licenses and registrations, the licensing of motor vehicles, the notification of change of ownership, and the application of learner's licenses (National Traffic Information System, 2008), with a processing capacity of about 99.95 % in less than 60 seconds. Currently, the system can allow financial institutions, insurance companies, and vehicle dealerships to register vehicles directly to ensure convenience and contribute to the reduction of criminal activities associated with the change of ownership of vehicles (National Traffic Information System, 2022).

The electronic procurement system developed by the Independent Electoral Commission (IEC) allows open and transparent bidding of government tenders to prevent corruption and ensure transparency (Mutula and Mostert, 2010). The e-Justice program aimed to improve the procedures of the judicial court to automate the interaction between courts, lawyers, and sheriffs. The e-Hanis program to streamline and integrate personal identification data across government departments and the National Automated Archival Information Retrieval System (NAAIRS) to facilitate access to public archived records (Cloete, 2012).

Another successful e-government service is the South African Revenue Service (SARS) e-filing system, which provides a means of conducting internet-related tax return transactions between governments, public servants, citizens, and businesses (Mutula and Mostert 2010). The system has been successful in offering same-day transaction processing, which resolved the problems previously generated by backlogs in the system (Naidoo, Singh, and Levine, 2011). Furthermore, the South African Social Security Agency (SASSA) has also successfully used ICT to accelerate grant processing and distribution and streamline processes through electronic deposit on beneficiaries' bank or Postbank accounts (SASSA, 2022).

Currently, Department of Communications and Digital Technologies reported that the implementation of the National Broadband project worth approximately R6 billion to deploy 10,000 Wi-Fi hotspots has been carried out to boost connectivity throughout the country, mainly in rural areas (Mzekandaba, 2023). As a mechanism to minimize the challenge of the digital divide in the country between urban and rural areas. Samsor (2021) emphasises that the digital divide is another challenge

encountered by most third-world countries when implementing e-government. The common flow of information in large cities or urban areas is high compared to rural and local communities in most developing countries (Velaga, Beecroft, Corsar, and Edwards 2012; Aruleba and Jere 2022). For example, rural communities often struggle to maintain the growing rate of digital connectivity, and the Internet and broadband infrastructure is difficult to penetrate in rural areas (Salemink, Strijker and Bosworth, 2017).

However, despite the remarkable role that the e-government system plays in improving some of the administrative activities in other parts of government institutions, most initiatives have not achieved the expected results. Several e-government programs have failed, such as the Golaganang project, which was set up to provide basic digital literacy for public servants, as well as to promote the use of ICT in the workplace (Mutula and Mostert, 2010). Recently the Automated Biometric Identification System, which forms part of the Department of Home Affairs' move toward a digital identification system intended to replace the e-Hanis system, was announced in December 2017 with the first phase supposed to be up and running after 12 months (Mzekandaba, 2023). The project still has not started and is affected by technical problems that delayed the system. As a result, this poses a challenge to service delivery, given the ever-growing population, which requires efficient means to improve the state of service delivery.

5.2.3 The Enefits E-Government System in the Promotion of Digital Service Delivery Within the South African Context

The benefits of the e-government system denote the use of ICT in transforming the level at which services are delivered to assist municipalities in curbing the challenges associated with poor service delivery. Murenzi and Olivier (2017) posit that the provision of government services and information has been carried out traditionally through face-to-face interaction. Where members of the society who are the recipients of such services are obliged to physically visit government offices. However, the development of ICT has contributed too many changes in the local sphere of government in accelerating and promoting the level of service delivery to the citizens. ICT has become the most convenient and efficient service delivery mechanism adopted by many government institutions (Fan, Epadile, Qalati, and Qureshi, 2022). As such, it became a critical component in many municipalities in the promotion of municipal services.

Given that social media platforms such as Facebook, Twitter, and Instagram have been popularly used to broadcast and disseminate public updates and notices (Fan, Epadile, Qalati, and Qureshi, 2022). E-government system is the sociotechnical system incorporating citizens, businesses, and municipalities to create and distribute information to the citizens. The use of digital services published through interlinked databases made it easy for the storage and retrieval of information to the public. This led to the promotion of municipal services delivered which benefitted both the public and the government. This indicates that e-government is a powerful tool that links both the public and private sectors while replacing the time-consuming and expensive traditional infrastructure of the office that has become obsolete and outdated (Thompson, Mullins, and Chongsutakawewong, 2020). Thus, despite being compounded with failure due to the challenges of insufficient ICT infrastructure and inefficient strategies to adopt the system in local municipalities. Electronic government saves time, costs, and resources, improving government efficiency. And made an essential change in the whole society structure and the ways of conducting businesses by utilising the potential of ICT as a tool in daily work (Alsheri and Drew, 2011).

Electronic government has benefitted citizens and entrepreneurs through the 24/7 availability of the service once a submission has been made. This saves time and reduces the cost of physical visits to the local municipal offices (Rucinsca and Fecko, 2020). The system allowed municipalities to move from the traditional paper-based documentation system to the electronic system. This reduced the administrative challenges characterised by transactions that involve manual physical filling systems burdened by enormous movements of correspondences, duplication of files, waste of paper, difficulty in accessing information in files, loss of data, and general inefficiency of operations (Mutula, 2008). Given

the adoption of the electronic government system by municipalities, the local sphere of government benefitted from the reduction of overall administrative procedures as a means of inter-organisational effectiveness. And the software solutions, administration, and management while receiving technical support from the service provider through outsourcing of services to the private contractor to improve the provision of municipal services.

E-government speeds up the application process of various licenses, permits, and approvals (Mohamed and Xavier, 2016). It is argued that with the installation of intelligent and systematic databases to store and retrieve information, software programmes, and websites enable accessibility of services through the portal (Mohamed and Xavier, 2016). In a nutshell, through the technological innovation of e-government, taxpayers can file for income tax returns through SARS e-filing; motorists can apply for vehicle operating licenses and change of car ownership and receive approvals through the e-Natis; beneficiaries can apply for the Social Relief of Distress Grant without physically visiting government offices. According to Mafunisa Consulting (2021), "e-government can simplify and speed up government activities and service delivery, especially in the local sphere of government". This indicates that e-government is the most proficient strategic solution suitable for the transformation of public service delivery to ensure smart government. The system of e-government enabled the administration of government to be conducted more proficiently without any waste of money, time, and resources while its services were delivered duly and properly.

5.2.4 The Challenges Affecting the Implementation of the E-Government System in South Africa

E-Government denotes the use of the Internet and Web resources to enable government services and information to be managed by institutions, be it in the national, provincial, and municipal sphere, as well as the private sector to the citizens, aimed at enhancing the provision of services in the public sector (Ali and Anwar, 2021). However, despite the effectiveness of the e-government system in improving the administrative activities of the government, it is still affected by various challenges that hinder the optimal provision of e-government services (Jakoet-Salie, 2020), which will be discussed in detail below.

5.2.4.1 ICT Infrastructure Shortage

Alshehri and Drew (2010) state that the shortage of ICT infrastructure is one of the contributing factors affecting the effective implementation of e-government in the country and other parts of the continent. Thus, internetworking is required to enable adequate information sharing contributing to the opening of new communication channels and the delivery of services (Ndou, 2004). The shortage of ICT infrastructure poses a great challenge and a barrier to the provision of government services and transactions online (Nkohkwo and Islam, 2013).

Given that the ICT infrastructure in e-government involves a wide range of components that form the backbone of the implementation of e-government (Apleni and Smuts, 2020), Consisting of infrastructure application server environment, infrastructure security, operating systems, application development tools, data and content management tools, and hardware that are relatively rare in rural areas of South Africa becomes a challenge. Internet connectivity as one of the components of ICT infrastructure has potential effects in many rural communities, mainly concerning the services delivered and accessed electronically. Mafunisa Consulting (2021) posits that members of society, particularly those who reside in isolated remote areas that are not properly connected to the Internet and broadband connectivity, will be unable to request and receive services from their respective municipalities. Thus, the COVID-19 pandemic, propelled municipalities to develop digital platforms to remain fully operational during this period. Most people suffered as many were unable to connect and access e-services from their municipalities due to the global shutdown, which requires most government activities to be carried out virtually. As a result, this together with the problems of power supply that affects internet connectivity mainly in rural areas where ICT infrastructure is limited, leads to a great challenge (Samsor, 2021).

According to Jakoet-Salie (2020: 15), “Many of the population of South Africa still lives in rural areas with the lowest quality of ICT infrastructure and services compared to urban ICT infrastructure”. As a result, the lack of ICT infrastructure in those remote areas affects the e-government system to achieve its objectives. As e-government services are provided with the assistance of ICT infrastructure capable of automating and digitising e-government services (Apleni and Smuts, 2020).

5.2.4.2 Digital Divide

The Samsor (2021) digital divide is another challenge affecting many countries when implementing e-government. It is the gap between citizens with access to and skills to use technology and those who are without access (Faloye and Ajayi, 2023). The disparity regarding access to information the citizens is seen as a contributing factor to the failure of the e-government system leading to basic digital illiteracy, technological equipment, transportation, and communication service costs (Matavire, Chigona, Roode, Sewchurran, Davids, Mukudu, and Boamahabu, 2010). According to Mail & Guardian dated April (2022: 1), “indicates that due to accessibility problems, millions of people in South Africa, particularly in rural areas, have been deprived of digital opportunities such as online job applications, online interviews, e-commerce, and telemedicine”. Since not all people have suitable access to computers and the internet, whether due to a lack of income, the necessary skills, or internet access (Alsheri and Drew, 2011).

This affects the use of an e-government system employed to enhance the provision of services, which is now seen to not serve its intended purpose. Given these circumstances, Ruggeri and Maram (2012) argue that the digital divide is a contributory factor that leads to market failure, which requires government intervention. Implementation of policies from different spheres of the political system to narrow the digital divide. As Jakoet-Salie (2020) points out, South Africa must address various challenges to bridge the gap of the digital divide before it can further affect the initiative, particularly in rural areas where the gap is visibly impeding the system of e-government.

5.2.4.3 ICT Skills Shortage and Training

According to Samsor (2021: 55), “the shortage of ICT skills is another contributing factor that affects the implementation of electronic government, mainly in countries of the third world where the rate of ICT skills is very low”. Mayedwa and Jean-Paul (2022) state that the shortage of ICT skills affects not only the government but South Africa as a whole. According to a recent survey on ICT skills conducted by UMUZI Johannesburg (2023: 1), “South Africa has a skills shortage of approximately 77,000 high-quality digital jobs”. 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.

In this regard, citizens and public officials should use and take advantage of the new technology to gain and understand information about e-government services and to make decisions about problem-solving, collecting, and disseminating information (Apleni and Smuts, 2020). However, this requires proper training concerning the use of technology. Training is an important element in improving the overall success of e-government (Ndou, 2004; Apleni and Smuts, 2020). Therefore, to curb this challenge, multipurpose community centres should be built in rural areas to help digitally illiterate citizens acquire the ICT skills required for the participation and accessibility of e-services to ensure the delivery of digital services. Thus, knowledge and skills should be extended to the service users, as the services delivered by municipalities electronically need to reach the right target who need to have the full understanding of all systems put in place (Mafunisa Consulting, 2021).

5.2.4.4 Lack of Awareness and Funding

The lack of awareness of know-how led to the failure of electronic government programs (Samsor, 2021). However, according to Apleni and Smuts (2020: 19), 'emphasise that awareness of

electronic government should be a proactive and serious marketing strategy on the benefits of electronic government services to citizens both in rural and urban areas'. Apleni and Smuts argue that resistance to change can be avoided by raising awareness of e-government in the initial stage of its implementation. This will help in promoting the growth and adoption of the system that requires funding to initiate and maintain e-government projects that are supported by ICT platforms to enable the operation of the system. According to Mafunisa Consulting (2021: 19), "setting up ICT platforms for the delivery of e-services requires huge investments, not only for the infrastructure necessary for the delivery of digital services but for the access and receiving of such services". It is further argued that it is of great importance to realize that digital service delivery in many South African municipalities requires investment to cultivate the required skills and expertise from public servants for the efficient and effective provision of municipal services. As a result, this poses a challenge because most local municipalities are not financially self-sufficient to raise the funding that is required to cater to the ICT provisions demanded to ensure digital service delivery.

The Development Bank of South Africa (2023) concurs that many municipalities in South Africa are not financially self-sufficient and often lack the necessary infrastructure such as ICT infrastructure to carry out their duties to the society at large. And the major obstacle to e-government mostly in third-world countries is the lack of finance for capital investment in new technology (Feng, 2003). The abilities of government offices to broadcast services online and to use technology for democratic outreach are affected by budget constraints (West, 2001). The overall total cost, consisting of the cost of system hardware and maintenance, purchasing, and upgrading systems, training, and development, is always seen as the major barrier constraining government institutions including municipalities from using the technology. Therefore, based on the above-mentioned statement, this can be inferred that lack of financial stability is a problem that is depriving many municipalities the opportunity to ensure digital service delivery.

Conclusion

Given that e-government has been effective in simplifying and speeding up the provision of service delivery. This enabled taxpayers to file for income tax returns through SARS e-filing; motorists applying for vehicle operating licenses and change of car ownership and receive approvals through the e-Natis; people applying for Social Relief of Distress Grant online without physically visiting government offices. The e-Government system is still affected by many challenges that hinder its objective. Many municipalities do not have enough ICT infrastructure to allow the provision of municipal services aggravated by a lack of basic digital literacy affecting members of society. Thus, ICT skills and training are critical in rural areas. This has been exacerbated by the proliferation of the digital divide that is continuously increasing the gap between urban and rural areas. Furthermore, funding is another challenge that is affecting the initiative of e-government. Most municipalities in South Africa are not financially independent to generate the revenue that is required to fund bigger projects that require a substantial amount of investment. As such, this results in the failure of the e-government system.

Recommendations

The paper recommends that to adopt the fully functional e-government system, South African municipalities must be technologically smart. This can be done by employing technological devices and communication channels that incorporate our diversified linguistic and cultural society. In the sense that if most of our communication channels and devices adopted by all municipalities for the administration of municipal services can be translated into our native languages. This will help to break the language barrier problems while assisting in transitioning the population group that was born before the digital era into the use of technology. South Africa has 11 official languages; however, the most used language by government institutions to communicate and disseminate information is English. This poses a challenge

to those who are not proficient in English since it is a borrowed language. Samboma (2019) reports that challenges such as language barriers limit the effectiveness of e-government and its relationships with citizens. In countries such as China, Mandarin is the most used language to communicate with the Chinese, which accommodates all members of the society in the country. Public administrators, managers, heads of departments, legislatures, and other stakeholders within the arenas of government institutions can administer government services efficiently and effectively, with the language that accommodates every population group in the society.

The paper further recommends that the government consider the adoption of ICT as a compulsory subject in the basic education curriculum, specifically in public schools where ICT is rarely taught before entering the tertiary level. This will assist the government in cultivating a society that is fully equipped and equipped with technological skills that will assist in the conversion of the e-government system and encourage the pursuit of technological degrees in the university. This will assist in breaking the digital divide that culminated between the wealthy and the impoverished group in the society; whilst promoting equal basic digital literacy at the grassroots level.

Moreover, the government should invest in municipalities to deliver e-services to its constituents, given the substantial amount of money that is required to sustain the initiative of e-government.

References

Ali, B & Anwar, G. 2021. Factors Influencing the Citizens' Acceptance of Electronic Government. *International Journal of Engineering, Business and Management, 5* (1): 48-60

Apleni, A & Smuts, H. 2020. An e-government implementation framework: A developing country case study. *International Federation for Information Processing,* 1 (2020): 15-27.

Ariesmansyah, A, Azka, Z.N, Yuliansyah, T, Artini, Y.D & Prasetya, T.B. 2022. How to improve public administration services in digital world: What evidences say. *International Journal of Social Sciences,* 5 (3): 202-210.

Aruleba, K & Jere, N. 2022. Exploring digital transforming challenges in rural areas of South Africa through a systematic review of empirical studies. *Scientific African,* 16 (2022): 1-13.

Atkinson, R.D & Leigh, A. 2003. Customer-oriented E-governance. *Journal of Political Marketing,* 2 (3): 159-181.

Bajunaied, K, Hussin, N & Kamarudin, S. 2023. Behavioural intention to adopt FinTech services: An extension of unified theory of acceptance and use of technology. *Journal of Open Innovation: Technology, Market and Complexity,* 9 (2023): 100010.

Blom P & Uwizeyimana, D.E. 2020. Assessing the Effectiveness of e Government and e-Governance in South Africa: During National Lockdown 2020. *Research in World Economy,* 11 (5): 208-219

Cheng-Min, C. 2019. Factors determining the behavioural intention to use mobile learning: An application and extension of the UTAUT model. *Frontiers in Psychology,* 10 (1652): 1-14.

Chetia, R.B. 2019. *Historical Background of E-governance.* Available at: http://www.shodhganga.inflibnet.ac.in. [Accessed date: 30 January 2023].

Cloete, F. 2012. E-government lessons from South Africa 2001-2011: Institutions, State of progress and measurement, section II: Country perspective on e-government emergence. *The African Journal of Information and communication,* 2012 (12): 128-142.

Constitution of the Republic of South Africa. 1996. Pretoria: Government Printers.

Dakduk, S, Santalla-Banderali, Z & Siqueira, J.R. 2020. Acceptance of mobile commerce in low-income consumers: Evidence from an emerging economy. *Heliyon* 6(11): 05451.

Development Bank of South Africa. 2023. *The impact of municipal infrastructure in basic service delivery in South Africa*. Available at: https://www.absa.org>article>impact-municipal-infr... [Accessed date: 03 January 2024].

Department of Public service and Administration (DPSA). 2001. *Electronic Government: The Digital Future - Public Service IT Policy Framework.* Pretoria: Government Printers.

Department of Telecommunications and Postal Services (DTPS). 2017. *National E-government Strategy and Roadmap.* Pretoria: Government Printers.

European Commission (EC). 2016. *EU e-Government action plan 2016-2020. Accelerating the digital transformation of government.* Brussels.

Faloye, S.T & Ajayi, N. 2023. Understanding the impact of the digital divide on South African student in higher educational institutions. *African Journal of Science, Technology, Innovation and Development,* 14 (7): 1-18.

Fan, M, Epadile, M, Qalati, S.A & Qureshi, N.A. 2022. The effects of e-government efficiency on subjective wellbeing. *Frontiers in Psychology,* 13 (2022): 1-15.

Feng, L. 2003. Implementing e-government strategy in Scotland: Current situation and emerging issues. *Journal of Electronic Commerce in Organizations*, 1 (2): 44 - 65.

Fernandez, L.A.V, Fernandez, Y.J.O, Hidalgo, C.V.S, Aliaga, J.C.C & Fuster-Guillen, D. 2023. E-government and its development in the region: Challenges. International *Journal of professional Business Review,* 8 (1): 1-15.

Galushi, L.T & Malatji, T.L. Digital Public Administration and Inclusive Governance at the South African Local Government: In depth analysis of E-government and service delivery in Musina Local Municipality. *Academic Journal of Interdisciplinary studies,* 11 (6): 116-126.

Independent Communication and Authority of South Africa (ICASA). 2022. *State of the ICT Sector Report of South Africa.* Available at: https://www.icasa.org.zauploads>files>stat... [Accessed date: 06 September 2023].

Jakoet-Salie, A. 2020. E-government Strategies in South Africa: A plausible attempt at effective delivery of services. *Administratio Publica*, 28 (3): 1-22.

Joseph, C. 2002. *Improving service delivery*. Johannesburg, South Africa: Published by the Friedrich Ebert Stiftung South Africa Office.

Kaminski, J. 2011. Theory applied to informatics: Lewin's Change Theory. *CJNI:Canadian Journal of Nursing Informatics, 6* (1): 1-4.

Kanaan, A, AL-Hawamleh, A.L. Abulfaraj, A, Al-kaseasbeh, H.M & Almu-hannad, A. 2023. The effect of quality, security and privacy factors on trust and intention to use e-government services. *International Journal of Data and Network Science,* 1 (2023): 185-198.

Kashaija, L. S. 2022. E-records Management Readiness for Implementation of E-Government in Local Authorities of Singida Municipal Council. *Journal of the South African Society of Archivists,* 55, 2022: 41-55.

Kassen, M. 2015. *E-Government in the United States: The Federal Model of Implementation.* In: Understanding Systems of e-Government. New York: Rowman & Littlefield.

Klaric, M. 2023. *Smart digitalisation and public service in the EU.* EU and comparative law issues and challenges series (ECLIC). Conference roceedings paper on International Scientific Conference. Digitalisation and Green Transformation.

Lallmahomed, M.Z.I, Lallmahomed, N & Lallmahomed, G.M. 2017. Factors influencing the adoption of e-Government services in Mauritius. *Telematics and Informatics,* 34 (4): 57–72.

Lee, A.S & Baskerville, R.L. 2003. Generalisability in Information System research. *Information System Research,* 14 (3).

Lehmann, T, Blumschein, P & Seel, N.M. 2022. *Accept it or forget it: Mandatory digital learning and technology acceptance in higher education.* Germany: Springer publications.

Lewin, K. 1947. *Frontiers in group dynamics.* In Cartwright, D. (Edn), Field Theory in Social Science. London: Harper and Row.

Loza, A, Ortega, X.Y & Manzano, R. 2020. Public management and society 2.o. knowledge pole. *Scientific-Professional Journal,* 5 (9): 55-66.

Lu, W. 2018. The Research of E-government on Big Data in China. *Advances in Social Science, Education and Humanities Research,* 291 (2018): 40-43.

Mafunisa Consulting. 2021. *The viability of e-techniques towards service delivery in the local government sector.* Local Government Sector Education and Training Authority.

Mahmud, M.E, Baharun, H, Asykur, M & Rochmatin, Z. 2022. Increasing teacher professionalism through change management in Madrasah: Kurt Lewin's perspective. *Southeast Asian Journal of Islamic Education*, 5 (1): 47-60.

Mail & Guardian dated April 2022. *South African can conquer the digital divide.* Available at: https://www.mg.co.za>thoughleader>opinion>2022-04-... [Accessed date: 06 July 2023].

Malomane, A.P. 2021. *The role of e-governance as an alternative services delivery mechanism in local government.* University of Johannesburg.

Marikyan, D & Papagiannidis, S. 2023. *Unified Theory of Acceptance and the use of technology: A review.* Available at http://open.ncl.ac.uk. [Accessed date: 26 June 2023].

Matavire, R, Chigona, W, Roode, D, Sewchurran, E, Davids, Z, Mukudu, A & Boamahabu, C. 2010. Challenges of e-government project implementation in a South African context. *The electronic journal information systems evaluation,* 13 (2): 153-164.

Mellita, D & Elpanso, E. 2020. Model Lewin dalam Manajemen perubahan: Teori klasic menghadapi disrupsi dalam lingkungan bisnis. *Mbia,* 19 (2): 142-152.

Mensah, I.K, Zeng, G & Mwakapesa, D.S. 2022. Understanding the drivers of the public value of e-government: Validation of a public value e-government adoption model. *Frontiers in psychology*, 13 (2022): 1-16.

Mohamed, M.Z & Xavier, J.A. 2016. Transforming public service delivery in Malaysia: The case of the implementation of e-government in local governments. *The Journal of Contemporary Management Research*, 10 (1): 39-57.

Mutual, S.M. 2008. Comparison of sub-Saharan Africa's e-government status with developed and transitional nations. *Information Management and Computer Security*, 16 (3): 235-250.

Murenzi, P & Olivier, B. 2017. E-government challenges faced by selected district municipalities in South Africa and Rwanda. *Administratio Publica*, 25 (1):141–171.

Mutual, S.M & Moster, J. 2010. Challenges and Opportunities of E-government in South Africa. *The Electronic Library*, 28 (1): 38-53.

Musakwa, I.S & Petersen, F. 2023. Factors affecting consumer acceptance and use of mobile delivery applications in South Africa. *South African Journal of Information Management,* 25 (1):1585.

Mzekandaba, S. 2022. *SA's ICT market weathers growth slowdown.* Johannesburg: IT Web Business Technology Media Community.

Mzekandaba, S. 2023. *Mp*^{s} *blast delays in Biometric Identification project.* Johannesburg: IT Web Business Technology Media Community.

Mzekandaba, S. 2023. *R6 billion SITA project to bulk up government's lacklustre broadband push.* Johannesburg: IT Web Business Technology Media Community.

Naidoo, G, Singh, S & Levine, N. 2011. *An Overview of Internet Developments and their Impact on E-Government in South Africa.* In Ajeeli, A.T.A & Al-Bastaki, Y.A.L (Edn). Handbook of Research on E-Services in the Public Sector: E-Government Strategies and Advancements. Hershey: IGI Global.

National Traffic Information System. 2008. *eNATIS.* Available at: www.enatis.com/. [Accessed date: 28 May 2023].

National Traffic Information System. 2022. *2022 Guide to eNATIS.* Available at: https://buycenter.co.za>2022-guide-to-enatis. [Accessed date: 26 May 2023].

Ndou, V, 2004. E-government for Developing Countries: Opportunities and Challenges. *The Electronic Journal on Information System in Developing Countries*, 18 (1): 1-24.

Ngcamu, B.S. 2019. Exploring service delivery protests in Post-Apartheid South African Municipalities: A literature review. *The Journal for Transdisciplinary Research in Southern Africa*, 15 (2019): 1-16.

Nkohkwo, Q.N & Islam, M.S. 2013. Challenges to the successful implementation of e-government initiatives in Sub-Saharan Africa: A literature review. *Electronic Journal of E-government*, 11 (2): 253-267.

Nokele, K.S & Mukonza, R.M. 2021. The adoption of e-government in the department of Home Affairs: Unpacking the underlying factor affecting adoption of e-government within the selected service centres in Limpopo province South Africa. *African Journal of Governance and Development*, 10 (1): 98-116.

Oqhuvhu, E.A, Gherevbie, D.E & Oni, S.O. 2022. E-governance in Nigeria: Challenges and prospects. *RUDN Journal of Public Administration*, 9 (2): 189-199.

Pham, T.K.T. 2023. *Government administrative capacity, e-government performance and citizen's e-government adoption: Evidence from a transition country*. Available at: https://www.emerald.com/insight/1750-6166.htm. [Accessed date: 09 December 2023].

Pinach, A, Cruz, C.Y & Valencia, O. 2020. Electronic logbook of public work: Between electronic and open government. *Digital University Magazine*, 21 (3): 1-9.

Presidential Review Commission (PRC). 2008. *Presidential Review Commission Report: Information Management, Systems and Technology*. Available at: https://www.gov.za/documents/report-presidential-review-commission-reform-and-transformation-public-services-south#ch6. [Accessed date: 11 October 2023].

Public Service and Administration. 2019. *The Era of Fourth Industrial Revolution: Challenges and Opportunities for the Public Service*. Available at:https://www.psa.co.za/docs/default-source/psa-documents/psa-opinion/psa_4th-industrial-revolution-on-public-servants.pdf?sfvrsn=7ad22450_3. [Accessed date: 10 December 2023].

Rahman, S.A, Alam, M.M.D & Taghizadeh, S.K. 2020. Do mobile financial services ensure the subjective well-being of micro-entrepreneurs? An investigation applying UTAUT model. *Information Technology for Development*, 26 (2): 421–444.

Rodriquez-Roman, R. 2021. Digital government in local governments in Latin America. *Koinonia Interdisciplinary Refereed Journal*, 6 (11): 163-179.

Rucinsca, S & Fecko, M. 2020. *E-services as a challenge for small municipalities: Slovac Republic experiences.* In Thomas Hemker et al (Edn). Central and Eastern European eDem and eGov Days 2020: Conference Proceedings.

Ruggeri, D & Maram, A. 2012. The Digital Divide: Issue Framing and Policy Responses. *American Journal of Management*, 13 (1): 112-120.

Mayedwa, M & Jean-Paul, V.B. 2022. *E-government actor's perspective: A case of local municipalities in South Africa.* University of Cape Town.

Salemink, K, Strijker, D & Bosworth, G. 2017. Rural development in the digital age: A systematic literature review on unequal ICT availability, adoption, and use in rural areas, *Journal of Rural Study*, 54 (2017): 360 - 371.

Samboma, T. A. 2019. E-government: A tool for service delivery in Botswana's local authorities. *Global Journal of Human Social Science*, 19 (2019): 1-4

Samsor, A.M. 2021. Challenges and Prospects of e-government implementation in Afghanistan. *International Trade, Politics and Development*, 5 (1): 51-70.

Savic, D. 2006. *E-governance Theoretical foundations and practical implications.* Available at: https://dobrica.savic.ca>pubs>egovernance-f... [Accessed date: 07 July 2023].

Sewandono, R.E, Thoyib, A, Hadiwidjodjo, D & Rofig, A. 2023. Performance expectancy of E-learning on higher institutions of education under uncertain conditions: Indonesia context. *Education and Information Technologies*, 28 (2023): 4041-4063.

Singh, S. 2014. *Towards understanding the process of e-Government application design in South Africa.* University of the Witwatersrand.

Sonnenberg, C. 2020. E-government and social media: The impact on accessibility. *Journal of Disability Policy Studies*, 31(3): 181-191.

South African Government. 2002. *Annual report.* Cape Town: Government Printers. Available at: https://www.gcis.gov.za/sites/default/files/docs/resource centre/reports/2003/report2002.pdf. [Accessed date: 04 October 2023].

South African Revenue Services.2013.Available at:http://www.sars.gov.za.[Accessed date:28 May 2023].

South African Social Security Agency. 2022. *Statistical Reports*. Available at: http://www.sassa.gov.za/index.php/knowledgcentre/statistical-reports.[Accessed date:28 May 2023].

South African National Department of Public Service and Administration (2022). *Annual Report for 2021/2022.* Available at: https://www.dpsa.gov.za/dpsa2g/documents/institutional/DPSA%20ANNUAL%20REPORT%20202 1-2022.pdf. [Accessed date: 10 December 2023].

Statistics South Africa. 2020. *South Africa: Digital Population as of January 2020. Digital Population in South Africa as of January 2020*. Available at: https://www.statista.com/statistics/685134/south-africa-digital-population/. [Accessed date: 10 June 2023].

The Constitution of the Republic of South Africa. 1996. Pretoria: Government Printers.

Thompson, N Mullins, A & Chongsutakawewong, T. 2020. Does high e-government adoption assure stronger security? Results from a cross-country analysis of Australia and Thailand. Gov. Inf. Q. 37:101408.

UMUZI Johannesburg. 2023. *Decreasing the digital skills gap in South Africa through income sharing agreements.* Available at: https://www.umuzi.org>articles>isa-product-offering. [Accessed date: 16 July 2023].

ur Rehman, M.H, Yaqoob, I, Salah, K, Imran, M., Jayaraman, P.P & Perera, C. 2019. The role of big data analytics in industrial Internet of Things. *Future Generation Computer Systems* 99, 247–259.

ur Rehman, I.H, Turi, J.A, Szyrocka, M.N.A & Pilar, L. 2023. The role of awareness in appraising the success of E-government systems. *Cogent Business & Management,* 10 (1): 1-18.

Velaga, N.R, Beecroft, M, Nelson, .D, Corsar, D & Edwards, P. 2012. Transport poverty meets the digital divide: accessibility and connectivity in rural communities. *Journal of Transport Geography,* 21 (2012): 102–112.

Venkatesh, V, Morris, M.G, Davis, G.B, Davis, F.D. 2003. User acceptance on information technology: Towards a Unified View. *MIS Quarterly,* 27 (3): 425-478.

West, D.M. 2001. *State and Federal E-government in United States*. Available at: http://www.insidepolitics.org/egovt01us.html. [Accessed date: 21 January 2024].