Technology-Based Interventions to Improve Service Delivery in South African Context

Shikha Vyas-Doorgapersad[1]

Abstract

The objective of this article is to examine and address the service delivery issues in South Africa and proposes the use of technology-based interventions to improve the situation. To address localised demands and globalised interventions to digitalising government processes and operation, e-government services should be advanced in South Africa as a component of information and communication technology (ICT). How these concepts of ICT, e-government and fourth industrial revolution (4IR) can be used to improve service delivery are investigated in the article. A qualitative research methodology was taken into consideration. It provides a desktop study of the data that was gathered through a review of literature and further makes use of conceptual analysis of the available data to draw findings. The study explores that South Africa is having difficulties providing efficient services to end users. At the municipal level, the situation is even worse due to a lack of funding, technical assistance, suitable infrastructure, capacity, and talent management, to name a few. Protests demanding the effective delivery of services are the result of these issues. The study provides suggestions for improving the situation. The study contributes by suggesting varied resources required by municipalities to implement effective services to community members in South Africa.

Keywords: *E-government, fourth industrial revolution (4IR), information and communication technology (ICT), qualitative, South Africa*

INTRODUCTION

Municipalities already face difficulties in delivering essential services to citizens in the conventional manner. The reasoning behind this is that some municipalities are still conducting business the old-fashioned way, using paper job cards and manually entering complaints. Although technological operations are in place in certain municipalities, staff members are resistant to change and unwilling to adapt to the new way of working. Sometimes a municipality's infrastructure lacks digital network coordination even though its staff is trained to work in a digitalised setting. The main point is that municipalities face a wide range of difficulties. Technology is, in fact, the key to success in today's modern context, and municipal employees have a responsibility to effectively and efficiently adapt, learn, capacitate, and provide digitalised services to communities. Even though every municipality faces unique difficulties due to its socio-economic and political demography, all municipalities are required by the constitution to provide basic services to residents living within their areas of jurisdiction.

Most municipalities struggle to give their residents services that meet acceptable standards. Technological limitations, poor talent management, improper infrastructure, insufficient financial resources, and a shortage of qualified staff are a few possible explanations. People in the community are angry about the inadequate quality of services they receive, and they frequently stage protests across the country.

The purpose of this article is to examine the factors that contribute to problems in service delivery and to propose that technology-driven interventions could be an alternate approach to enhance service delivery. The article presents a conceptual framework for the study that considers the challenges and protests surrounding service delivery in South African municipalities. It then delves into theoretical frameworks related to digital governance, discusses the main findings and their implications, offers recommendations, and concludes by outlining the potential areas of future research.

[1] Professor, School of Public Management, Governance and Public Policy College of Business and Economics University of Johannesburg South Africa Telephone: 011 559 5115/ 072 463 8685 Email: svyas-doorgapersad@uj.ac.za, Orcid Number: https://orcid.org/0000-0002-8146-344X

LITERATURE REVIEW

The section explores various service delivery challenges and protests in the South African municipalities. At municipal level, the South African government faces numerous difficulties. The primary issues facing the local government are insufficient funding, backlogs in service delivery, disregard for legal requirements, absence of oversight and assessment systems, and ongoing historical segregation that led to income disparity. In addition to these difficulties, there is also unemployment, poverty, bad governance, inadequate infrastructure, and underqualified staff. There are many items on the list.

According to Maseko (2018:27), service delivery is the act of a government or government body providing a good or service to a community that it has promised or that the community expects. Political science, and more especially its public administration subfield, is linked to the idea of public service delivery. It was further highlighted by Maseko (2018:27; Kemp & Vyas-Doorgapersad 2020) that both traditional and modern academics maintain that public administration is a phenomenon that has existed for as long as humanity itself and is a subfield of political science. The schools of thought held by Karl Marx and Max Weber contend that without access to basic public services like water and sanitation, human existence would come to an end. Weber's hierarchy of needs makes this very evident. The paradigm shift from public administration to new public management (NPM) must be considered. This resulted in several innovative initiatives for better service delivery across Africa, including South Africa. These initiatives included corporatisation, partnerships, privatisation and e-government, which were innovative responses to the constraints of inadequate resources at municipal level and the increased demands of community members for better services, as highlighted by scholars such as Maseko and Vyas-Doorgapersad (2018), and Kemp and Vyas-Doorgapersad (2020). The primary purpose of local governments is to provide sustainable and efficient municipal services to their constituents. To that end, they are mandated to supply all citizens with water, sanitary conditions, electricity, transportation options, primary healthcare, housing, and security in a healthy and safe environment, also ensuring that these services are provided in a practical and sustainable manner (refer to Statistics South Africa [Stats SA] 2017:3; Kemp 2020: 16-17). Yet, providing services continues to be a crucial, tangible, symbolic component of realising a meaningful life in underprivileged communities. This is so that better services can contribute to restoring the dignity of the impoverished, who were consistently refused adequate housing and space under the apartheid regime (Human Sciences Research Council [HSRC] 2016:13; Kemp 2020:17).

It is critical to emphasise that municipalities have a duty to provide services that satisfy end users. However, it is evident that municipalities are still having difficulty providing high-quality services even after [28] years of democracy, which is why there are more protests to receive acceptable levels of service delivery and other ways that people are expressing their frustration, including using violence, stresses Kanyane (2014 cited in HSRC 2016:13: Kemp 2020:17). Still, one of the main issues South African municipalities are facing is to provide efficient and effective service delivery. The primary cause of this is that municipalities across the country struggle to have investments in appropriate resources to offer effective services to community members within their areas of jurisdiction. The inadequacy of resources and basic services also hamper growth and development (refer to Development Bank of Southern Africa (DBSA 2024). For example, lack of financial resources and inadequate supply of water and electricity can have a negative impact on businesses, hence affecting the economic growth within the respective areas. The financial dependency and lack of economic resources therefore may contribute towards the inability of municipalities to offer adequate services to end users.

There are various reasons that municipalities struggle to offer acceptable standards of services to communities. Some of these reasons include inadequate resources (financial, human, technical, technological), inappropriate infrastructure, lack of bureaucratic structures and processes, non-compliance of legislative frameworks, lack of monitoring and evaluation mechanisms, to state a few. Municipalities cannot provide the quality of service required by communities promptly due to a lack of structure, resources, and maintenance. All these factors affect the level of service delivery and also hamper the socio-economic growth in their areas of jurisdiction. These factors get more challenging when coupled with lack of capacity and competency to deliver effective services. This statement is supported by the opinion of Kanyane (2014:96),

who stressed that in South Africa, municipal incapacity is so pervasive that it makes it impossible to provide even adequate services. The ability to provide municipal services to meet the needs of a particular community depends on sufficient funding. It can be deduced that the lack of resources may result in the non-delivery of services that is witnessed in the forms of robots not working, sewerage systems deteriorating, water pipes leaking, load-shedding advancing, etc. and causing frustration amongst community members. These are the few problems listed that occur in several municipalities across the country.

Providing services is a main objective of every organisation that requires strategic goals regarding what processes and structures are required to deliver the services to end users. Hence organisations need to have strategic plans to execute and implement such services. The same principle applies to municipalities where the municipal office appoints various bureaucrats and administrators to deliver basic services to communiity members. However, the challenge is that services are not delivered effectively. In this regard, Enwereji and Uwezeyimana (2019:13757), mention that because South African public office strategic leaders lack the requisite strategic leadership attributes to turn the situation around, poor strategy implementation processes can be attributed to them. Constraints in service delivery have been identified as the main cause of local municipalities' failure to carry out approved strategies, integrated development plans (IDPs), and programmes. Enwereji and Uwizeyimana (2019:13757), further stress that managers must direct and regulate the nature of activities within an organisation because they are the reason why strategies fail to be implemented. According to Shaidi, Taylor and Raga (2014:99), council members have faced accusations of haughtiness and a lack of empathy for the needs of the community. A few of the political factors driving inadequate strategy execution are ineffective dispute resolution and a lack of reliable systems to keep an eye on client interface standards or service performance. This is directly related to the absence of leadership philosophies required for running the municipality.

These challenges result in service delivery protests. Figure 1 shows the statistics of service delivery protests in South African municipalities since 2004.
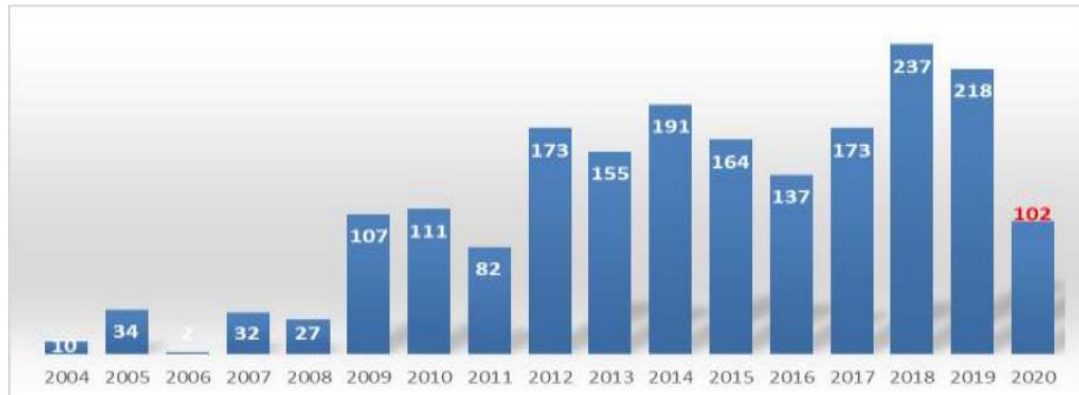

Figure 1: Major service delivery protests, by year (2004 –2020)

Source: Municipal IQ Municipal Hotspots Monitor 2021; Vyas-Doorgapersad 2024:841.

The study suggests utilising information and communication technology (ICT)-based interventions that include e-government and fourth industrial revolution (4IR) to improve delivery of services in South African context.

METHODS AND ANALYSIS

The study is qualitative in approach. It was stated in Greÿling (2014:19; Nhlapo 2020: 24) that the conceptualisation of the research being conducted by qualitative researchers is intimately related to the understanding of qualitative research methods and methodology. This implies that there is a continuum along which qualitative research can be categorised, with one dimension characterised by a holistic, nearly paradigmatic conception and the other by pragmatic, opportunistic and situational methodological practices.

It is further stated that the focus and reasoning of the study are made clear by the research question that the qualitative researcher begins with (Schram 2002 cited in Greÿling 2014:19; Nhlapo 2020: 24). According to Bryman (1995 cited in Greÿling 2014:19; Nhlapo 2020: 24), social scientists can now access topics that would not have become apparent to them if they had adhered to a strict and organised research plan, thanks to this open approach. It was also cited in Vyas-Doorgapersad (2017:145) that understanding phenomena in context-specific settings is the goal of qualitative research, which is a phenomenological investigation (also refer to Chiware & Vyas-Doorgapersad, 2021:318; Mbatha & Vyas-Doorgapersad 2023:134).

A review of the academic literature on a given subject is called a literature review (McCombes 2019:1; Mothabi 2022:10). The review, which basically represents the state of knowledge on a particular topic, then helps a researcher understand and identify appropriate research methodologies, pertinent theories, and/or insufficiencies in the current studies that call for additional investigation (McCombes 2019:1; Mothabi 2022:10). The literature review for this study is compiled using various academic journal articles on e-governance, 4IR, Honours, MA, PhD documents regarding ICT, service delivery, internet articles, and so forth. Through conceptual analysis, the data is examined. The process of assessing concepts, definitions, variables, terms, hypotheses, factors, claims and theories for coherence and clarity, insightfully assessing and analysing their correlations, and outlining assumptions and implications is known as conceptual analysis (Bennett & Hacker 2003 cited in Petocz & Newbery 2010:126; Maile 2022:15). The opinions of Maxwell (2005), that were adapted by Maile & Vyas-Doorgapersad (2022:83), Vyas-Doorgapersad (2023:456), and Mbatha and Vyas-Doorgapersad (2023:134-135) confirm that the process of creating the conceptual framework for an empirical study is known as a conceptual analysis.

RESULT

By interacting with their constituents through technological platforms, service providers, including government entities at all three levels of governance (national, provincial and municipal), can enhance delivery of services. The ability to personally communicate with a responsive governing body to voice concerns, challenges, needs and receive feedback is highly valued by the recipients of these services. Adopting electronic service delivery mechanisms is imperative for South Africa to remain up to date in a world where innovative technologies are continuously being developed. To provide their constituents with easy access to information about developments in information and communication technology, what services citizens can expect, ways to improve services, and ways to reduce costs and increase efficiency, governments, and municipalities in particular, must provide appropriate services online, as emphasised by Maseko (2018: 24-25). According to Kwadeli (2011:4; Ncamphalala, 2019: 24). ICT and e-governance go hand in hand in the field of public governance. Advance communication between the governed and the government is the goal of e-governance. Posters, newspapers, meetings, radio and television were the available forms of communication used in the past. Today's modern modes of communication make use of mobile, satellite, and internet services. Tlagadi (in Kwaledi 2011: 4; Ncamphalala, 2019: 24) further states that the implementation of e-governance entails the adoption of novel approaches to leadership, policy and investment deliberation, education access, citizen participation, and hence improved service delivery. As a technological component of e-governance, this is accomplished using e-administration, or electronic administration. According to Balancing Act´s News (in Kwadeli 2011: 3; Ncamphalala, 2019: 24), in order to create a paperless office, e-administration refers to any of a number of mechanisms that transform paper-based processes found in traditional offices into electronic processes. This is a productivity and performance-enhancing information and communication technology (ICT) tool. Therefore, as further stated by Heginbothman (2006 in Sefuli 2012: 11; Ncamphalala, 2019: 24), the future of public administration is rapidly changing due to information and communication technologies. A global transformation process has been sparked by the desire to join the information age, placing information communication technology at the center of government procedures and practices. The use of ICTs in the provision of public goods (e-government), according to Anshari and Hamdan (2022:4), is the key. This practice also aims to greatly improve the administration and provision of municipal services, as well as to empower citizens through the expansion of all available channels for communication and the integration of workflows and processes, states Bradford (2022:90). Furthermore, e-government initiatives can be classified into three spectrums:

government-to-government, government-to-business, or government-to-citizen, as emphasised by Anshari and Hamdam (2022:7). To cover every facet of society and existence, technology-based interventions employ measures that are informed by these categories and are digitalised. To provide municipal services like water, electricity, sanitation, refuse collection, community safety, and other essential services, e-governance in the context of local government may offer technologically driven processes to communities.

According to Sunday (2014) cited in Uwizeyimana (2015:153), the progressive development of ICTs has increased many countries' accesses to government services and related activities, enhancing the effectiveness of governance. Moreover, the application of e-governance has proven to be a useful instrument for data or information sharing, public consultation, generating citizen feedback, monitoring and evaluation (M&E) of service rendering projects, and establishing the much-needed transparency in government entities (Sunday 2014 cited in Uwizeyimana 2015:154). E-government further makes possible all the transformative results of accountable, bottom-up, citizen-centered, and responsible governments. According to the study, this is bringing public entities and information right to the doorstep of the residents. This eliminates the problems brought about by antiquated, mechanical service delivery methods that were unresponsive and slow.

Choi, Park, Rho and Zo (2016:645) determine that because e-governance has the potential to build and maintain strong institutional capacities, provide citizens with better value for their money, and, most importantly, enhance community development, it deserves to receive the attention it warrants in developing countries. Moreover, e-government can speed up the delivery of public services by promoting transparency, which lowers corruption. For MacLean and Titah (2022:27), because e-governance gives citizens more ways to access, use, and respond to government information and other stimuli, it empowers them. This is due to the fundamental significance that information access holds for both citizens and governments. It can be argued that e-governance is bi-directional, with citizens interacting with their government through their platforms to provide data and feedback.

The Fourth Industrial Revolution (4 IR) measures include the sophisticated form of technology-based interventions. The founder and WEF chairman, Klaus Schwab, popularised the 4IR, which describes a world in which people move between offline and virtual spaces while going about their daily lives thanks to the use of integrated technologies, as highlighted by Miller (2015:3).

Neufeind, O'Reilly and Ranft (2018:38) note that while digitalisation—which makes it possible for producers and consumers to interact digitally—has greatly increased trade, labor market flexibility, and ease of doing business, it has also significantly increased local society's reliance on international virtual platforms. The study takes into consideration that this kind of dependency is typically a trap, and that any failure of these will probably put the entire globalised world in danger of collapsing. Accordingly, municipalities and other local entities are exposed to competitive global markets as well as the risks associated with capitalised free markets, which are demonstrated by global financial crises, because of globalization (refer to Ncamphalala 2024). Based on the foregoing, the present study concludes that the fourth industrial revolution's central characteristic is the use of digital devices in governance or administration. This understanding is supported by Uwizeyimana and Basheka (2017:9) stating that it is implied that in the fourth industrial revolution, public goods are substantially distributed electronically via a variety of channels, including servers, mobile devices, and computer networks.

Naude (2017:4) argues that this is true even though machines can replace people with dated and entry-level abilities and skills—a fact that governments need to acknowledge and seek to address. Unfortunately, South Africa's rural and historically underprivileged populations, including Blacks and Women, have low skill levels, which makes them easy targets for obsolescence. This problem is exacerbated by a lack of infrastructure for automation and the implementation of artificial intelligence (AI) initiatives, as stated by Sutcliffe and Bannister (2020:65; also refer to Kunene, Nzimakwe & Utete 2023). As properly understood, the 4IR's threat to skills exacerbates the unstable state of scarce skills shortages in South African labour markets. This needs to be investigated further. Subsequent publications might delve into the kinds of competencies needed in the 4IR era to provide community members with effective and efficient services.

DISCUSSION

South Africa entered the New Public Management (NPM) era accompanied by remaining public administration issues such as government fragmentation, public exclusion, and inefficiency (Biljohn & Lues 2018:154; Soga 2022:96). Biljohn and Lues (2018:154; Soga 2022:96) also argue that it is impossible to separate the effectiveness and efficiency of service delivery from the type of governance structure in place. Scholars also believe that South Africa inherited a public administration-driven governmental and public service structure when it attained democracy (Muthien 2013:3-4; Soga 2022:96). Since the public administration approach was rife with racial inequality, rural-urban disparities, and inefficiencies in service delivery, it was quickly determined that this system was inappropriate for South Africa's aspirations of an equitable and prosperous society (Franks 2014:48: Soga 2022:96; also refer to Soga & Vyas-Doorgapersad 2022). Local government is expected to embrace new and innovative ideas and the logic of co-design and co-production of new services to meet community needs and increase citizen engagement. Accepting change is still difficult, particularly at the local government level in South Africa, despite the NPM's perception of itself as a dynamic and inventive public service provider that is distinct from conventional and bureaucratic institutions (Shava & Doorgapersad, 2021:36; Shava & Vyas-Doorgapersad 2022: 83-84). The reasons for this are many and as Demircioglu (2017:1; Shava & Vyas-Doorgapersad 2022: 84) cited that reduced funding and a lack of appropriate expertise are barriers preventing local government from implementing digital innovations that may enhance worker performance. It was corroborated by other academics who claimed that a lack of skills has a detrimental impact on business practices and local government collaboration, which leads to a poor implementation of significant innovations (Vyas-Doorgapersad, 2010; Shava & Vyas-Doorgapersad 2022:84; also refer to Shava & Vyas-Doorgapersad 2023). This is further supported by Kemp and Vyas-Doorgapersad (2020), stating that nevertheless, implementing such innovations also calls for sufficient equipment, electricity, community garden spaces, citizen awareness, and infrastructure, to mention a few. More investigation into this might be explored through future publications. Because of its advanced nature, this study would help evaluate the impact of digital innovations more effectively, as they align with the 4IR and contribute to better service delivery in South African municipalities. In summary, to pinpoint areas for improvement and identify weaknesses, it is critical that all municipalities perform ongoing monitoring and evaluation (M&E) of service delivery standards. The fact that urbanisation—the movement of people from small towns to large cities—increases the pressure on metropolitan municipalities to guarantee that everyone residing in their areas of jurisdiction receives adequate basic services is also important to consider. Municipalities are further required by the situation to invest in sufficient infrastructure and service delivery channels. To meet the needs of community members who are spread out geographically and can be connected through digital platforms, technology-driven interventions are therefore imperative. Additionally, urbanisation expects people to work long hours, which makes bill payment and service delivery more difficult. Nevertheless, e-government platforms make it easier for community members to get in contact with local government representatives via online platforms in a 24/7 convenience.

The E-service delivery model developed by Islam and Ahmed (2007: 3; Maseko 2018: 52) is therefore suggested to be taken into consideration in this article. This model places a strong emphasis on citizen engagement and the caliber and depth of relationships between the government and governed. In both rural and urban settings, the model offers a one-stop service center using an agency-level, back-end computerised database of customers. Additionally, direct links between the customer database and agency-level websites and portals (i.e., government departments) highlight the essential interface between the state and its constituents, between government and its electorates, and between government and stakeholders. In addition to being able to give feedback and communicate directly with the public, governments can also distribute information to businesses, service providers, and citizens, as suggested by Sithole (2015: 74; Maseko 2018: 52-53). The model satisfies the goals of this study because, according to Maseko (2018: 52, 124), it entails building a networked society by connecting disparate service delivery systems in South African municipalities. In addition, it seeks to put into practice a Unified Management Model that links the public sector, private industry, government, and citizens.

Technology-driven interventions can assist municipalities to install intelligent transportation systems, such as smart parking, traffic control, and public transportation optimisation, hence should be implemented by municipalities. To ease traffic and enhance air quality, for example, cities can implement adaptive traffic signals and real-time traffic monitoring. Municipalities are encouraged to consider the use of microgrids, renewable energy sources, and energy-efficient building plans. For instance, provide financial support for the installation of solar panels on public structures or provide incentives for energy-saving appliances can be of assistance to people and businesses. These agreements have the potential to turn municipalities into 'smart cities', as providing services via e-government systems connected by technological platforms and digitalised, coordinated processes create a 'smart infrastructure'. To successfully implement this, municipal offices must plan how to establish technological platforms, implement technological processes, select personnel with digital competencies and skills, reconsider how to link talent management to the re-design skills base needed in various departments of the municipality, increase funding for ICT/e-government/4 IR required training programmes, coordinate all digitalised processes for service integration, and provide training to both internal and external customers. Municipalities require strategic vision and plans to manifest the idea of 'smart city' with 'smart services'.

Shava and Vyas-Doorgapersad (2021:996), support the idea that municipal officials would be empowered by the re-design and re-orientation of 4IR's skills training and development programmes as part of its comprehensive technological revolution. Municipal staff re-training is still essential because new models, concepts, and technological advancements have the potential to alter the way public services are delivered in the future. Therefore, having a qualified staff and being prepared are essential for ensuring smart service delivery. Additionally, it is also important to consider, as highlighted by Nhede, Mazenda and Masiya (2022:5) that the system of public human resource management should guarantee that public servants possess the necessary skills and knowledge to recognise and effectively address the new circumstances brought about by the ever-changing environment. It is important to consider that both on-the-job and off-the-job training approaches have been utilised, depending on the specific requirements for training. Additionally, the various industrial revolutions are bringing about changes in employment and the complexity of the workplace are adopted under 'change management'.

CONCLUSION

The study makes the following suggestions for consideration that might enhance municipal service delivery. Technology is the future for service delivery and reception, as Covid-19 taught the world. Online platforms were used by municipalities to manage operations during the lock-down, and residents could use them to make bill payments. Lockdown restrictions were loosening while people's understanding of the importance of technology was expanding. The understanding, awareness and adoption of technology assisted people who then could schedule driving license exams, pay rates and taxes, renew license discs, renew licenses, and make appointments to pick up their passports or South African identity cards through digitalised processes and platforms of communication. The internet access was also made available to employees in public institutions, including municipalities. Many companies went online. Several offices switched to virtual operations. It can be inferred that as 4IR technologies have been made available, there has been a greater uptake of 4IR during the Covid-19 pandemic. With the use of 4IR technologies, many citizens were able to access services, just as they could with e-government platforms. Because services are now delivered more quickly and efficiently, it has altered how the government serves its citizens. The government of South Africa needs to develop and implement its infrastructure in a way that prevents the digital divide, hence accommodating every community member without any form of discrimination. Compared to people living in cities, those from poorer backgrounds have less access to 4IR. This is a challenge that requires attention from municipal authorities, ensuring that every community member has access to technology-driven platforms for communication and service delivery.

Through literature review, it can be considered that numerous academics have shown that the fourth industrial revolution can be an opportunity to promote democracy and sustainable development, particularly in local government. Municipalities in South Africa can effectively and efficiently provide public services

thanks to 4IR technologies, which include e-government, e-service delivery models, artificial intelligence, blockchain technology, information and communication technologies, and many more. Access to financial services will be enhanced, citizen coordination will grow, data collection will be made easier, and citizens' access to both public and private information will be increased. Additionally, it will improve public and private information accessibility to citizens, enhancing accountability and transparency. These technologies can provide improved administrative oversight and internal controls, which can discourage power abuse and corruption. In the end, it can support local governments in achieving sustainable development goals (SDGs) 9 and 11.

Wide-ranging effects on communities and municipalities may result from the fourth industrial revolution. For this reason, it is imperative that municipalities thoroughly analyse the opportunities and potential challenges that may arise and incorporate them into their strategic plans. To better prepare municipalities for the disruptive shift that modern technologies represent, it is also critical to find solutions to these problems in a proactive manner. The study also strongly recommends that for South African municipalities to utilise the 4IR to improve service delivery, funds for capacity building initiatives must be allocated. This aspect will form part of future studies.

REFERENCES

Anshari, M. and Hamdan, M. (2022). Enhancing e-government with a digital twin for innovation management. Journal of Science and Technology Policy Management,1-11. https://doi.org/10.1108/jstpm-11-2021-0176.

Biljohn, M.I.M. and Lues, L. (2018). Using Social Innovation in Open and Closed Governance Systems Considerations for South African Local Government. Administration Publica, 26(3),153-169.

Bradford, J. (2022). The geopolitics of smart urban governance: 3D space mapping algorithms, digital twin simulation and virtual reality modeling tools, and cloud computing and image recognition technologies. Geopolitics, History, and International Relations, 14(2), 88-103. https://doi.org/10.22381/ghir14220226

Chiware, M. and Vyas-Doorgapersad, S. (2021). Implementation Gaps in Human Resource Performance Management Practices in the Ministry of Health and Child Care, Zimbabwe. African Journal of Governance and Development, 10 (2), 316-335. https://doi.org/10.36369/2616-9045/2021/v10i2a2

Choi, H., Park, M.J., Rho, J.J. and Zo, H. (2016). Rethinking the assessment of e-government implementation in developing countries from the perspective of the design-reality gap: Applications in the Indonesian e-procurement system. Telecommunications Policy, 40 (7), 644-660. https://doi.org/10.1016/j.telpol.2016.03.002

Demircioglu, M.A. (2017). Reinventing the Wheel? Public Sector Innovation in the Age of Governance. Public Administration Review, 77 (1). DOI:10.1111/puar.12821

Development Bank of Southern Africa (DBSA). (2024). The effects of poor infrastructure in education, transport and communities. Available at: https://www.dbsa.org/article/effects-poor-infrastructure-education-transport-and-communities (Accessed on 12 March 2024).

Enwereji, P.C. and Uwezeyimana, D.E. (2019). Challenges in strategy implementation processes in South African municipalities: a service delivery perspective. Gender & Behaviour, 7 (3). https://hdl.handle.net/10520/EJC-1975253910

Franks, P.E. (2014). The Crisis of the South African Public Service. Journal of the Helen Suzman Foundation, 74(1),48-56.

Greÿling, S.J. (2014). The South African Local Government National Capacity Building Framework of 2011: Critical Future Considerations for 2016. Unpublished Doctoral Thesis. Johannesburg: University of Johannesburg.

Human Sciences Research Council (HSRC). (2016). Service Delivery Challenges in South Africa. Pretoria: HSRC.

Islam, M.M. and Ahmed, A.M.S. (2007). Understanding E-Governance: A Theoretical Approach. Asian Affairs, 29(4), 29-46.

Kanyane, M. 2014. Exploring Challenges of Municipal Service Delivery in South Africa (1994-2013). Available at: https://apsdpr.org › apsdpr › article › download (Accessed on 28 May 2024).

Kemp. J. (2020). Variables influencing service delivery in Protea Glen, Johannesburg. Unpublished MA Minor Dissertation. Johannesburg: University of Johannesburg.

Kemp, M.J. and Vyas-Doorgapersad, S. (2020). Service delivery challenges in Protea Glen, Johannesburg. Africa's Public Service Delivery and Performance Review, 8(1), a368. https://doi.org/10.4102/apsdpr.v8i1.368

Kunene, P.T., Nzimakwe, T.I. and Utete, R. (2023). The Preparedness of Employees for the New World of Work in the Fourth Industrial Revolution: Evidence from South Africa. International Journal of Social Science Research and Review. 6 (1), 37-47. http://dx.doi.org/10.47814/ijssrr.v6i11.1635

Kwaledi, O. (2011). Implementation of E-Administration for Enhanced Service Delivery at Sedibeng District Municipality. Unpublished Master Dissertation. Vanderbijlpark: North-West University.

MacLean, D. and Titah, R. (2022). A systematic literature review of empirical research on the impacts of e-government: a public value perspective. Public Administration Review, 82(1), 23-38. https://doi.org/10.1111/puar.13413

Maile, K.V. (2022). Organisational ethics management to promote good governance in a national government department. Unpublished MA dissertation. Johannesburg: University of Johannesburg.

Maile, K.V. and Vyas-Doorgapersad, S. (2022). Organisational Ethics Management to Promote Good Governance in the South African Public Service. Business Ethics and Leadership, 6(2), 78-85. http://doi.org/10.21272/bel.6(2).78-85.2022

Maseko, N. (2018). The use of alternative service delivery mechanisms within the City of Johannesburg Metropolitan Municipality. Unpublished Dissertation. Johannesburg: University of Johannesburg.

Maseko, N. and Vyas-Doorgapersad, S. (2018). Alternative Service Delivery Mechanisms within the City of Johannesburg Metropolitan Municipality. Administratio Publica, 26(3),170-190.

Mbatha, C. and Vyas-Doorgapersad, S. (2023). The Effect of Covid-19 on Sustainable Development Goal Four in South Africa. International Journal of Social Science Research and Review, 6(11), 132-144. https://doi.org/10.47814/ijssrr.v6i11.1620

McCombes, S. (2019). How to Write a Literature Review. Available at: https://www.scribbr.com/dissertation/literature review/#:~:text=A%20literature%20review%20is%20a,gaps%20in%20the%20existing%20research (Accessed on 15 March 2021).

Miller, J.B. (2015). The healing connection: How women form relationships in therapy and in life. Boston, MA: Beacon Press.

Mothabi. P. (2022). The adherence of King Code IV to promote ethical culture in LGSETA. Unpublished MA minor dissertation. Johannesburg: University of Johannesburg.

Municipal IQ. (2021). Uptick in service delivery protests likely to show political tensions in pandemic election year: For immediate release. Available at: https://www.municipaliq.co.za (Accessed on 01 June 2024).

Muthien, Y. (2013). Public Service Reform in SA: Key Challenges of Execution. Strategic Review for Southern Africa, 36(2),126-142.

Naude, W. (2017). Entrepreneurship, education and the fourth industrial revolution in Africa. IZA Discussion Papers, No. 10855, Institute of Labor Economics (IZA), Bonn.

Ncamphalala, M. (2019). The role of ICT to promote smart governance in local governments. Unpublished MA Dissertation. Johannesburg: University of Johannesburg.

Neufeind, M., O'Reilly, J. and Ranft, F. (Eds). (2018). Work in the digital age: Challenges of the fourth industrial revolution. Lanham, MD: Rowman and Littlefield International.

Nhede, N.T., Mazenda, A. and Masiya, T. (2022). The South African public service and the Fourth Industrial Revolution. Africa's Public Service Delivery and Performance Review, 10(1), 420-428. https://doi.org/10.4102/apsdpr.v10i1.420

Nhlapo, T.M.S. (2020). Human resource development strategy for gender equlaity within the Department of Correctional Services. Unpublished MA dissertation. Johannesburg: University of Johannesburg.

Petocz, A. and Newbery, G. (2010). On conceptual analysis as the primary approach to statistics education research in psychology. Statistics Education Research Journal, 9(2),123-145. https://doi.org/10.52041/serj.v9i2.380.

Sefuli, D.I. (2012). The impact of e-government on enhanced community participation at Emfuleni Local Municipality. Unpublished MA Dissertation. Vanderbijlpark: North-West University.

Shaidi, W.E., Taylor, J.D. and Raga, K. (2014). Service delivery protests in municipalities: A case study of Nelson Mandela Bay Municipality. Administratio Publica, 22(3), 102-129.

Shava, E. (2022), "Survival of African Governments in the Fourth Industrial Revolution," Advances in African Economic, Social and Political Development", in: Everisto Benyera (ed.), Africa and the Fourth Industrial Revolution, pp. 125-144, Springer, Cham.

Shava, E. and Vyas-Doorgapersad, S. (2021). Talent management: A 'recipe' for public service delivery in the fourth industrial revolution. International Journal of Research in Business and Social Sciences, 10 (8),138-148. DOI: https://doi.org/10.20525/ijrbs.v10i8.1504

Shava, E. and Vyas-Doorgapersad, S. (2022). Fostering digital innovations to accelerate service delivery in South African Local Government. International Journal of Research in Business and Social Science, 11 (2), 83-91.

Shava, E. and Vyas-Doorgapersad, S. (2023). Inclusive participation in information and communication technologies (ICT) processes for smart services in the city of Johannesburg. Insights into Regional Development, 5 (1), 26-40. DOI:10.9770/IRD.2023.5.1(2)

Sithole, V.E. (2015). An E-Governance Training Model for Public Managers: The Case of Selected Free State Provincial Departments. Potchefstroom: North-West University.

Soga, B. (2022). A comparative analysis of the use of e-government services by small businesses. Unpublished PhD Thesis. Johannesburg: University of Johannesburg.

Soga, B. and Vyas-Doorgapersad, S. (2022). The use of e-government services by small businesses in municipalities. EUREKA: Social and Humanities, 6, 92-104. https://doi.org/10.21303/2504-5571.2022.002576

Statistics South Africa (Stats SA). (2017). Statistical Release P0318. General Household Survey. [Available at: http://www.statssa.gov.za/publications/P0318/ P03182017.pdf. (Accessed on 16 August 2019).

Sutcliffe, M. and Bannister, S. (2020). Research on the 4th Industrial Revolution: Implications for local government in the context of skills development. City Insight, pp.1-115. Available at: chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://cdn.lgseta.co.za/resources/research_and_reports/2019%20%E2%80%93%202020%20RESEARCH%20PROJECTS/RESEARCH%20PROJECT%20-%204TH%20INDUSTRIAL%20REVOLUTION%20IN%20THE%20LOCAL%20GOVT%20SECTOR.pdf (Accessed on 16 April 2024).

Uwizeyimana, D.E. (2015). Mobile phones as a means for extending e-governance in rural areas of Sub-Saharan Africa. African Journal of Public Affairs, 8(4), 151-170.

Uwizeyimana, D.E. and Basheka, B.C. (2017). The multidisciplinary, interdisciplinary and trans-disciplinary nature of public administration–a methodological challenge? African Journal of Public Affairs, 9(9): 1-28. https://doi.org/10.4324/9781315089324-3

Vyas-Doorgapersad, S. (2010). Capacity-building for developmental local governance in South Africa. Journal of Public Administration, 45(1), 43-57.

Vyas-Doorgapersad, S. (2017). Workplace spirituality for improved productivity: A gendered perspective. International Journal of Social Sciences and Humanity Studies, 9 (2), 143-156.

Vyas-Doorgapersad, S. (2022). The use of digitalization (ICTs) in achieving sustainable development goals. Global Journal of Emerging Market Economies, 2 (3), 1-4. https://doi.org/10.1177/09749101211067295

Vyas-Doorgapersad, S. (2023). Investigating the use of PPPs for upgraded urban water infrastructure. International Journal of Research in Business and Social Science, 12(3), 452-460. https://doi.org/10.20525/ijrbs.v12i3.2476.

Vyas-Doorgapersad, S. (2024). Exploration of service delivery challenges in South Africa. International Journal of Educational Review, Law and Social Sciences, 4 (3),837-847. https://doi.org/10.54443/ijerlas.v4i3.1663