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Rethinking the Role of Local Government in Service Delivery in South Africa: Towards Digital Transformation

Costa Hofisi [1] & Lewis Edwin Chigova[1]
[1] North-West University, South Africa.

ABSTRACT

The article provided insights into why local government and service delivery must be rethought in light of digital transformation. It exposed the significance of digital transformation in solving local government and service delivery challenges. The article followed a qualitative research approach. It employed document analysis and literature review as data collection instruments. It argued that digital transformation can help local governments in South Africa fulfil constitutional obligations and meet policy goals. It demonstrated how digitally transformed local government can solve service delivery problems through the deployment of digital technologies that improve decision-making, cut costs, streamline operations, and offer efficient services. The article revealed that the digital divide, lack of technical expertise, data security concerns and resource constraints are some of the challenges that can affect the digital transformation of local government and service delivery in South Africa. These challenges must be resolved for digital transformation to play a significant role in improving the effectiveness of local government in service delivery. The article recommended that local governments in South Africa digitally transform in ways that foster equality and deliver local government services to all citizens. The article contributes to scholarship advocating for public sector innovation broadly, and specifically, illustrates the criticality of embracing digital transformation of local government and service delivery.

Keywords: Digital Transformation, Digital Technologies, Local Government, South Africa, Service Delivery

Correspondence
Costa Hofisi
Email: costa.hofisi@nwu.ac.za

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INTRODUCTION

Recent attention to digital transformation as part of public sector innovation is associated with the broader economic and social changes being experienced by public organisations.[1] Digital transformation is driven by the necessity to solve the apparent local governments' failures to provide critical services to communities and the proliferation of advanced technologies.[2] Several studies identify digital transformation as a study and practice domain within Public Administration and situate digital transformation within the evolution of Public Administration and its associated sub-disciplines.[3] For example, digital transformation has been a central part

[1] H. de Vries, "Innovation in the Public Sector," in *Elgar Encyclopeadia of Public Management* (Edward Elgar Publishing Limited, 2022), 243–46.
[2] Mulya Amri, "Innovative City Governments: A Transaction Cost Approach to Explain Public Innovation in Mid-Sized Cities of Indonesia and the Philippines," 2015; Slamet Widodo, Zailani Surya Marpaung, and Anang Dwi Santoso, "What Makes Public Sector Innovation Sustainable?: A Case Study from Indonesia.," *TEM Journal* 11, no. 3 (2022).
[3] Jeffrey Roy, *From Machinery to Mobility: Government and Democracy in a Participative Age*, vol. 2 (Springer Science & Business Media, 2013); Jeffrey Roy, "Cloud Computing and Gov 2.0: Traditionalism or Transformation across the Canadian Public Sector?," *International Journal of Public Administration in the Digital Age (IJPADA)* 1, no. 1 (2014): 74–90; Jeffrey Roy, "Digital Government and Service Delivery: An Examination of Performance and Prospects," *Canadian Public Administration* 60, no. 4 (2017): 538–61.

of local government since the New Public Management/Reinventing Government movement.[4] In their work "Reinventing Government", Osborne and Gaebler proposed a normative argument for revitalising government as a means of addressing objectives related to increased efficiency, decentralisation, accountability, resource management, and marketisation of public services.[5]

Currently, some scholars on digital transformation in local governance reflect on the new thinking on Public Administration and its implications on service delivery.[6] Dunleavy et al. argued in their denouncement of New Public Management that a new type of governance has emerged, a paradigm they referred to as "digital-era governance."[7] They highlighted how information technology and information systems are now a crucial part of an across-the-board set of modifications in delivering and organising public services. The new type of governance is further captured by the OECD, which submits that:

> The new digital environment offers opportunities for more collaborative and participatory relationships across stakeholders to shape political priorities actively, collaborate in the design of public services, and participate in their delivery, with the public value chain highlighting changes to public sector boundaries.[8]

Heeks set an impetus for digital transformation in the edited book, which sought to demonstrate the noteworthy and evident ways information communication technology (ICT) plays in "re-inventing" government operations and running.[9] Using selected case studies in Chapters Two to Five of his book, Heeks demonstrates that ICT can cause public sector changes.[10] Similarly, in their study on the "Determinants of Government Efficiency," Voghouei and Jamali discovered that changes in information technology expenditure had a favourable effect on government efficiency, both inside the government and across society.[11] Currently, some studies are claiming that digital transformation innovation is the key to unlocking improvements in the delivery of services in local governments.[12]

Furthermore, extant research on digital innovation in local governments from several countries illustrates the benefits.[13] It suggests that digital transformation leads to enhancing the quality of public services and strengthening organisations' capacity to tackle public problems in the face of societal difficulties.[14] More so, studies examining the fourth industrial revolution (4IR) discourse have amplified the necessity of rethinking local government and service delivery. For instance, empirical research points out performance improvements in the public sectors of countries that adopted the new technologies ushered in by the 4IR early.

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[4] Victor Bekkers, "Reinventing Government in the Information Age. International Practice in IT-Enabled Public Sector Reform," *Public Management Review* 5, no. 1 (2003): 133–39; Fariborz Damanpour and Marguerite Schneider, "Characteristics of Innovation and Innovation Adoption in Public Organizations: Assessing the Role of Managers," *Journal of Public Administration Research and Theory* 19, no. 3 (2009): 495–522;Richard Heeks, "E-Government in Africa: Promise and Practice," *Information Polity* 7, no. 2–3 (2002): 97–114. Christopher Hood, "Contemporary Public Management: A New Global Paradigm?," in *Policy Process* (Routledge, 2014), 404–17; D. Osborne and T. Gaebler, "Reinventing Government. .," *Journal of Leisure Research* 27, no. 3 (1995): 302; Christopher Pollitt and Geert Bouckaert, *Public Management Reform: A Comparative Analysis-into the Age of Austerity* (Oxford university press, 2017).

[5] Osborne and Gaebler, "Reinventing Government. ."; Bekkers, "Reinventing Government in the Information Age. International Practice in IT-Enabled Public Sector Reform."

[6] Patrick Dunleavy et al., *Digital Era Governance: IT Corporations, the State, and e-Government* (Oxford University Press, USA, 2006); Roy, "Digital Government and Service Delivery: An Examination of Performance and Prospects"; Darrell M West, "E-government and the Transformation of Service Delivery and Citizen Attitudes," *Public Administration Review* 64, no. 1 (2004): 15–27.

[7] Patrick Dunleavy et al., "New Public Management Is Dead—Long Live Digital-Era Governance," *Journal of Public Administration Research and Theory* 16, no. 3 (2006): 467–94.

[8] OECD, "Digital Government Strategies for Transforming Public Services in the Welfare Areas" (OECD Paris, 2016), 6-7.

[9] Heeks, "Reinventing Gov. Inf. Age."

[10] Heeks, "Reinventing Gov. Inf. Age."

[11] Hatra Voghouei and Mohammad Ali Jamali, "Determinants of Government Efficiency: Does Information Technology Play a Role?," *Eurasian Business Review* 8 (2018): 285–98.

[12] Amri, "Innovative City Governments: A Transaction Cost Approach to Explain Public Innovation in Mid-Sized Cities of Indonesia and the Philippines"; Everisto Benyera, *The Fourth Industrial Revolution and the Recolonisation of Africa: The Coloniality of Data* (Taylor & Francis, 2021); Damanpour and Schneider, "Characteristics of Innovation and Innovation Adoption in Public Organizations: Assessing the Role of Managers"; Costa Hofisi, "Fostering Innovation in the Public Sector," 2018; Elvin Shava and Costa Hofisi, "Challenges and Opportunities for Public Administration in the Fourth Industrial Revolution," *African Journal of Public Affairs* 9, no. 9 (2017): 203–15; Voghouei and Jamali, "Determinants of Government Efficiency: Does Information Technology Play a Role?"; Widodo, Marpaung, and Santoso, "What Makes Public Sector Innovation Sustainable?: A Case Study from Indonesia."

[13] A. Bousdekis and D. Kardaras, "Digital Transformation of Local Government: A Case Study from Greece," *Paper Presented at the 2020 IEEE 22nd Conference on Business Informatics (CBI).*, 2020; P. Lindgren, Y. Taran, and O. V. Shelia, " Business Model Generation for Technology Entrepreneurs: Evidence from the Emerging Markets of Russia," *Journal of Business Models* 2, no. 2 (2014): 1–21; Jeffrey J Pittaway and Ali Reza Montazemi, "Know-How to Lead Digital Transformation: The Case of Local Governments," *Government Information Quarterly* 37, no. 4 (2020): 101474; Voghouei and Jamali, "Determinants of Government Efficiency: Does Information Technology Play a Role?"

[14] Damanpour and Schneider, "Characteristics of Innovation and Innovation Adoption in Public Organizations: Assessing the Role of Managers"; Widodo, Marpaung, and Santoso, "What Makes Public Sector Innovation Sustainable?: A Case Study from Indonesia."

However, studies on digital transformation with a focus on the public sector point to literature gaps since only a few of them have focussed on the need to rethink local government and service delivery. Many studies that were done in the past decades centred on drivers of innovation in the public sector.[15] A rising number of research publications have addressed the unique drivers of digital transformation.[16] Some of these researches, which cover municipalities in Scotland, Sweden and Germany, explored digital transformation in local government being driven by crises, automation and the desire to cultivate creativity.[17] The evidence emerging from these studies exposes the factors that necessitate the need to rethink local governance from a digital transformation point of view. For example, the experiences during the height of the COVID-19 pandemic affirmed the depiction of a crisis as a catalyst of digital transformation.[18] The COVID-19 pandemic period exposed an increasing need to address structural and systemic innovation gaps at the core of policy interventions while also considering new paradigms and approaches that create responsive and flexible ecosystems and governance frameworks.[19]

Some scholars contend that the preference for digital transformation is not purely technological but a consequence of local governments' historical necessity to change their service delivery methods.[20] However, there is no doubt that digital transformation will change local governance. Therefore answers must be found to critical legacy questions about long-term and short-term impacts, large and small changes, and technocratic political and institutional changes.[21] These emerging questions can only be answered by rethinking local government and service delivery in a world of digital transformation. The rest of the article is organised as follows. The next section reviews the literature on digital transformation. The article then explores the significance of digital transformation in local government and service delivery. Finally, the research zeros in on the significant challenges and opportunities of digital transformation before presenting the study's concluding remarks.

LITERATURE REVIEW

Since it hinges on different aspects and affects other entities in unique ways, digital transformation is an intricate and many-sided phenomenon.[22] Studies examining digital transformation still lack a straightforward exposition despite its growing interest in different aspects.[23] For instance, after analysing the current meanings of digital transformation, Vial finds an overall enthusiasm for the phenomenon, despite its conceptual ambiguity.[24] A

[15] Simon Calmar Andersen and Mads Leth Jakobsen, "Political Pressure, Conformity Pressure, and Performance Information as Drivers of Public Sector Innovation Adoption," *International Public Management Journal* 21, no. 2 (2018): 213–42; Christian Bason, *Leading Public Sector Innovation*, vol. 10 (Bristol: Policy Press, 2010); Hanna De Vries, Victor Bekkers, and Lars Tummers, "Innovation in the Public Sector: A Systematic Review and Future Research Agenda," *Public Administration* 94, no. 1 (2016): 146–66; Jenny M Lewis, Lykke Margot Ricard, and Erik Hans Klijn, "How Innovation Drivers, Networking and Leadership Shape Public Sector Innovation Capacity," *International Review of Administrative Sciences* 84, no. 2 (2018): 288–307; Ida Lindgren, Daniel Toll, and Ulf Melin, "Automation as a Driver of Digital Transformation in Local Government: Exploring Stakeholder Views on an Automation Initiative in a Swedish Municipality," in *DG. O2021: The 22nd Annual International Conference on Digital Government Research*, 2021, 463–72; Maria Manuela Natário and Joao Couto, "Drivers, Enablers, and Conditions for Public Sector Innovation in European Countries," *Innovar* 32, no. 83 (2022): 5–15.

[16] Michael J Ahn and Yu-Che Chen, "Digital Transformation toward AI-Augmented Public Administration: The Perception of Government Employees and the Willingness to Use AI in Government," *Government Information Quarterly* 39, no. 2 (2022): 101664; Bousdekis and Kardaras, "Digital Transformation of Local Government: A Case Study from Greece"; Justine Gangneux and Simon Joss, "Crisis as Driver of Digital Transformation? Scottish Local Governments' Response to COVID-19," *Data & Policy* 4 (2022): e26; Lindgren, Toll, and Melin, "Automation as a Driver of Digital Transformation in Local Government: Exploring Stakeholder Views on an Automation Initiative in a Swedish Municipality"; Long Xue et al., "Can Digital Transformation Promote Green Technology Innovation?," *Sustainability* 14, no. 12 (2022): 7497.

[17] Gangneux and Joss, "Crisis as Driver of Digital Transformation? Scottish Local Governments' Response to COVID-19"; Lindgren, Toll, and Melin, "Automation as a Driver of Digital Transformation in Local Government: Exploring Stakeholder Views on an Automation Initiative in a Swedish Municipality"; Hans Christian Klein, Frederike Marie Oschinsky, and Sarah Rubens, "Cultivating Creativity: Insights from German Local Governments about the Drivers and Barriers of Change," 2021.

[18] Gangneux and Joss, "Crisis as Driver of Digital Transformation? Scottish Local Governments' Response to COVID-19."

[19] Lewis Edwin Chigova and Costa Hofisi, "Challenges and Opportunities of Public Sector Innovation in Fighting the Covid-19 Pandemic," *International Journal of Criminology and Sociology* 10 (2021): 1717–25.

[20] Fernando Filgueiras, Cireno Flávio, and Pedro Palotti, "Digital Transformation and Public Service Delivery in Brazil," *Latin American Policy* 10, no. 2 (2019): 195–219; James L Hetland Jr, "Restructuring Service Delivery: The Basic Issue for Government," *Nat'l Civic Rev.* 71 (1982): 67.

[21] West, "E-government and the Transformation of Service Delivery and Citizen Attitudes."

[22] Bousdekis and Kardaras, "Digital Transformation of Local Government: A Case Study from Greece"; Zeljko Tekic and Dmitry Koroteev, "From Disruptively Digital to Proudly Analog," *Managing Digital Transformation: Understanding the Strategic Process*, 2021.

[23] Resego Morakanyane et al., "Determining Digital Transformation Success Factors," 2020.

[24] Gregory Vial, "Understanding Digital Transformation: A Review and a Research Agenda," *Managing Digital Transformation*, 2021, 13–66.

significant part of the prominent literature defines digital transformation as the usage or leverage of digital technology or its incorporation.[25] These definitional tendencies are explained by Tekic and Koroteev as digital technology enablers for organisational transformation: a means to achieve strategic and powerful digital transformation goals.[26]

Historically, Dunleavy et al. observe that digital systems have been essential in shaping public administration changes for several decades.[27] In recent years, Tekic and Koroteev argue that the widespread adoption of digital technologies and their ability to transform many aspects of human existence makes them the central concepts and apparatuses of digital transformation.[28] Digital transformation is the transformation of an organisation driven by digital technology (new enabling IT/IS solutions and trends).[29] It is "a process that aims to improve an entity by triggering significant changes to its properties through combinations of information, computing, communication, and connectivity technologies."[30] Informed by the different conceptualisations underscored above, this study views the digital transformation of local government and service delivery as harnessing digital technologies to augment the delivery of services to citizens through disrupting processes of stakeholder interaction, operational performance, and co-production of public value. In the contemporary local government discourse, where 4IR-linked tools are being incorporated, digital transformation is central to intelligent service delivery.[31]

METHODOLOGY

The article examined how local governance and service delivery may be rethought in light of digital transformation. It analysed documents and reviewed literature as part of qualitative data collection. Documents were analysed to unravel how digital transformation can improve the South African local government and expose the major challenges and opportunities. Document analysis was critical because it allowed the authors to make use of existing documents and gain access to the best sources of data.[32] Therefore, documents such as the Constitution of South Africa, policy documents, white papers, and other government-linked publications were analysed. A literature review helped the study to understand the conceptualisations and significance of digital transformation in the public sector and local governance sector in particular.

The review of literature was done to specifically "link the study to the broader body of knowledge" as a way of expanding the thinking around digital transformation of government and public service delivery. The literature review process allowed the authors to consult and analyse published studies on databases like Google Scholar, PubMed, Scopus and Web of Science. Keywords such as digital transformation, digitisation of public service delivery, digital local governance, digital service delivery, South African local government and public sector innovation were employed to search for literature. The methods necessitated the article to analyse books and journal articles. The qualitative approach allowed for the systematic organisation, integration and examination of data. The data was analysed through content analysis. This technique enabled the article to understand substantive content or illuminate deeper meanings from the documents analysed and literature reviewed .

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[25] Riitta Bekkhus, "Do KPIs Used by CIOs Decelerate Digital Business Transformation? The Case of ITIL," 2016; Haluk Demirkan, James C Spohrer, and Jeffrey J Welser, "Digital Innovation and Strategic Transformation," *It Professional* 18, no. 6 (2016): 14–18; Michael Fitzgerald et al., "Embracing Digital Technology: A New Strategic Imperative," *MIT Sloan Management Review* 55, no. 2 (2014): 1; Thomas Hess et al., "Options for Formulating a Digital Transformation Strategy.," *MIS Quarterly Executive* 15, no. 2 (2016); Anna Horlacher, Patricia Klarner, and Thomas Hess, "Crossing Boundaries: Organization Design Parameters Surrounding CDOs and Their Digital Transformation Activities," 2016; Ana Kutnjak, Igor Pihiri, and M Tomičić Furjan, "Digital Transformation Case Studies across Industries–Literature Review," in *2019 42nd International Convention on Information and Communication Technology, Electronics and Microelectronics (MIPRO)* (IEEE, 2019), 1293–98; Kirsten Liere-Netheler, Sven Packmohr, and Kristin Vogelsang, "Drivers of Digital Transformation in Manufacturing," 2018; Everlin Piccinini et al., "Transforming Industrial Business: The Impact of Digital Transformation on Automotive Organizations," 2015; A Pucihar et al., "The Impact of Cloud-Based Digital Transformation on ICT Service Providers' Strategies," *30TH Bled EConference: Digital Transformation–From Connecting Things to Transforming Our Lives* 111 (2017); Anna Singh and Thomas Hess, "How Chief Digital Officers Promote the Digital Transformation of Their Companies," in *Strategic Information Management* (Routledge, 2020), 202–20.

[26] Tekic and Koroteev, "From Disruptively Digital to Proudly Analog."

[27] Dunleavy et al., "New Public Management Is Dead—Long Live Digital-Era Governance."

[28] Tekic and Koroteev, "From Disruptively Digital to Proudly Analog."

[29] Leonard Heilig, Silvia Schwarze, and Stefan Voß, "An Analysis of Digital Transformation in the History and Future of Modern Ports," 2017; Kutnjak, Pihiri, and Furjan, "Digital Transformation Case Studies across Industries–Literature Review."

[30] Vial, "Understanding Digital Transformation: A Review and a Research Agenda," 118.

[31] Mncedisi Ncamphalala and Shikha Vyas-Doorgapersad, "The Role of Information and Communication Technology (ICT) on the Transformation of Municipalities into Smart Cities for Improved Service Delivery," *International Journal of Research in Business and Social Science (2147-4478)* 11, no. 2 (2022): 318–28; Elvin Shava and Shikha Vyas-Doorgapersad, "Fostering Digital Innovations to Accelerate Service Delivery in South African Local Government," *International Journal of Research in Business and Social Science (2147-4478)* 11, no. 2 (2022): 83–91.

[32] Hani Morgan, "Conducting a Qualitative Document Analysis," *The Qualitative Report* 27, no. 1 (2022): 64–77.

THE SIGNIFICANCE OF DIGITALLY TRANSFORMING LOCAL GOVERNMENT AND SERVICE DELIVERY

Local government is the part of the government closest to the citizens.[33] It is the coalface of public service delivery and the primary contact point between citizens and government.[34] Bousdekis and Kardaras agree that public administration at the local level is an under-researched area that faces additional challenges in terms of digital transformation, including its dependence on central government policies, limited investment capacity, consistent direct contact with citizens and businesses, and high variability in the services offered.[35] The road to digital transformation is marked by addressing pertinent service delivery challenges and making future predictions anchored on technological advancements. Transformationalists have always been eager to predict the widespread consequences of new technologies.[36] In its current form, digital transformation at the local government and service delivery levels is more advanced than the e-government transformation of the early 2000s. It is currently the focal point of attempts to use digital technologies and improve public sector performance.[37] Unlike the era of e-government transformation, digital transformation is now at the forefront of the looming 4IR, which is expected to revolutionise different sectors at a time when citizens are demanding better services from governments.[38] 4IR technologies, like artificial intelligence (AI), machine learning, big data analytics, cloud computing, the Internet of Things, and social media, have become critical catalysts for digital local governance.[39] Tekic and Koroteev suggest that these 4IR-linked digital technologies blur the line between physical and cyber spaces in ways never imaginable before.[40]

In exposing the significance of digital transformation, this study advances that it can deal with legacy local government challenges, solve current and new problems and prepare or launch local government and service delivery into the future. With the advent of social media technologies which allow citizens to share their dissatisfaction with poor service delivery by responsible authorities and mobilise each other to protest, local governments face growing expectations and demands for improved quality of public services.[41] The pressure on local governments to promote digital transformation necessitates systematic and consistent efficiency, particularly in larger-scale service delivery, and necessitates a more revolutionary set of adjustments to reinvent service delivery, particularly in high-impact sectors.[42] An analysis of extant literature reveals that technologies, for instance, AI, the Internet of Things, and big data, can support local government decision-making, facilitate the faster and better delivery of services, and make cities safer.[43] Related studies underscore the costs for local governments that fail to appreciate and benefit from the opportunities linked to digital transformation. Likewise, Shava and Hofisi contend that for public authorities to survive the disruptions likely to be caused by the effects of digital transformation (such as the 4IR), public officials need to be capacitated to adapt to the new technologies.[44] This capacitation is essential since the administrative structures will likely be subjected to efficiency and transparency mechanisms that stand global competition.[45]

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[33] Samuel Bogalebjapoo Koma, "The State of Local Government in South Africa: Issues, Trends and Options," *Journal of Public Administration* 45, no. si-1 (2010): 111–20.
[34] Gerrit Van der Waldt, "Managing Local Government Performance: Key Considerations and Challenges," *Journal of Public Administration* 41, no. 2 (2006): 128–43; Christopher Thornhill, "The Transformed Local Government System: Some Lessons," *Journal of Public Administration* 43, no. si-2 (2008): 492–511.
[35] Bousdekis and Kardaras, "Digital Transformation of Local Government: A Case Study from Greece," 131.
[36] West, "E-government and the Transformation of Service Delivery and Citizen Attitudes."
[37] Roy, "Digital Government and Service Delivery: An Examination of Performance and Prospects."
[38] Shava and Hofisi, "Challenges and Opportunities for Public Administration in the Fourth Industrial Revolution."
[39] Tekic and Koroteev, "From Disruptively Digital to Proudly Analog."
[40] Tekic and Koroteev, "From Disruptively Digital to Proudly Analog," 685.
[41] OECD, "Digital Government Strategies for Transforming Public Services in the Welfare Areas."
[42] OECD, "Digital Government Strategies for Transforming Public Services in the Welfare Areas,"9.
[43] National Planning Commission, *National Development Plan 2030: Our Future – Make It Work* (Pretoria: The Presidency, 2012); Njuguma Ndung'u and Landry Signé, "The Fourth Industrial Revolution and Digitization Will Transform Africa into a Global Powerhouse," *Foresight Africa Report* 5, no. 1 (2020): 1–177; Nixon Muganda Ochara, "Governance Mechanisms for Fourth Industrial Revolution Artifacts in Higher Education Institutions: A Systems Perspective," *Available at SSRN 3814133*, 2021; Jean-Charles Pomerol, "Artificial Intelligence and Human Decision Making," *European Journal of Operational Research* 99, no. 1 (1997): 3–25; Christopher Rigano, "Using Artificial Intelligence to Address Criminal Justice Needs," *National Institute of Justice Journal* 280, no. 1–10 (2019): 17; Shweta Srivastava, Aditya Bisht, and Neetu Narayan, "Safety and Security in Smart Cities Using Artificial Intelligence—A Review," in *2017 7th International Conference on Cloud Computing, Data Science & Engineering-Confluence* (IEEE, 2017), 130–33; J. Williams, "Public Safety and Smart Cities: How Assistive AI Will Help," https://www.openaccessgovernment.org/public-safety-and-smart-cities-how-assistive-ai-will-help/111615/, 2021.
[44] Shava and Hofisi, "Challenges and Opportunities for Public Administration in the Fourth Industrial Revolution."
[45] Shava and Hofisi, "Challenges and Opportunities for Public Administration in the Fourth Industrial Revolution."

In China, Xiao et al. observe exploits to create a digital government emanating from the central government's 14th Five-Year Plan.[46] They discovered that most local governments that started implementing digital transformation, have achieved some success. Furthermore, experiences from the OECD countries indicate the timed benefits of digitally transforming local governance. Firstly, it is demonstrated that digital transformation enables the establishment and maintenance of appropriate fiscal policies in the short term.[47] Conversely, in South Africa, since 2012, several municipalities have been flagged by the Auditor General's reports for poor financial administration in their jurisdictions. Hence, a case for local governments in South Africa to transform to address financial management gaps can be drawn from the OECD experience. Secondly, it is exposed that in the longer run, digital transformation is significantly critical:

> ...to maintain the public sector's credibility in terms of efficient and effective delivery of high-quality services that are shaped by and responsive to users' needs, thus nurturing public trust in (local) governments' capacity to boost more inclusive processes and growth. [48]

Hence, local governments in countries such as China under pressure from their central government to capitalise on digital technologies and move towards digital transformation are accruing positive results.[49] As part of its digital transformation, Uzbekistan made significant efforts towards an open government, which led to an increase in the sharing of data amongst critical stakeholders such as citizens, government and businesses.[50] Hence, as it stands, local governments worldwide are under pressure to digitally transform their service delivery processes and systems.

DIGITALLY TRANSFORMING SOUTH AFRICAN LOCAL GOVERNMENT AND SERVICE DELIVERY

Local government is the backbone of South Africa's service delivery system, providing essential services to citizens. Section 151 of the 1996 Constitution of South Africa establishes local government as the local sphere of government. The same Constitution in section 152(1b) underscores "ensuring the provision of services to communities in a sustainable manner" as one of the aims of local government. Against this background, digital transformation presents municipalities in South Africa with a chance to fulfil constitutional obligations. For many years, the importance of digital transformation in the local government sector has been discussed in South African policy documents. For example, it is encapsulated in the country's National Development Plan 2030 of 2020, which sought to "build capabilities and enhance the capability of the state to solve complex problems."[51] Undoubtedly, the delivery of services in South Africa is increasingly budding up as behemoth responsibility troubling the three tiers of government in the country. For the central government, the vitality of having local government digitally transformed is essential for South Africa to remain competitive in the global economy. Similarly, for local governments that carry a constitutional mandate provided by section 152(1b) of the 1996 Constitution, by leveraging digital technologies, they can improve operational efficiency, reduce costs, and provide better services to the citizens. These improvements can be achieved by implementing digital transformation anchored on automation, data analytics, cloud computing, and mobile applications.

Digital transformation of local government can improve the conveyance of services and reduce the dissatisfaction of regularly protesting communities in South African municipalities.[52] Recurring protests over service delivery in the recent past demonstrate the terrible status of the South African local government.[53] As responsible authorities continue to be inundated with the search for appropriate solutions, automation is one of the impactful digital tools for addressing some of the eminent challenges. Hence, in South Africa, considering the apparent service delivery problems, the imperatives for local governments to transform service offer a compelling justification for digital transformation.[54] The National Development Plan 2030 provides that South African municipalities must strengthen their commitment to improving efficiency and effectiveness. Digital

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[46] Jianying Xiao, Lixin Han, and Hui Zhang, "Exploring Driving Factors of Digital Transformation among Local Governments: Foundations for Smart City Construction in China," *Sustainability* 14, no. 22 (2022): 14980.
[47] OECD, "Digital Government Strategies for Transforming Public Services in the Welfare Areas."
[48] OECD, "Digital Government Strategies for Transforming Public Services in the Welfare Areas."
[49] Xiao, Han, and Zhang, "Exploring Driving Factors of Digital Transformation among Local Governments: Foundations for Smart City Construction in China."
[50] Gulnoza Kuldosheva, "Challenges and Opportunities of Digital Transformation in the Public Sector in Transition Economies: Examination of the Case of Uzbekistan," 2021, https://www.adb.org/publications/challenges-opportunities-digital-transformation-uzbekistan.
[51] National Planning Commission, *National Development Plan 2030: Our Future – Make It Work*,1.
[52] Maréve I M Biljohn and Liezel Lues, "Doing It Together: How Co-Production Underpins the Use of Social Innovation during Service Delivery," *Africa's Public Service Delivery & Performance Review* 8, no. 1 (2020): 9.
[53] Shava and Vyas-Doorgapersad, "Fostering Digital Innovations to Accelerate Service Delivery in South African Local Government."
[54] OECD, "Digital Government Strategies for Transforming Public Services in the Welfare Areas,"9.

transformation strategies such as automation, for example, can help South African local governments streamline processes, reduce paperwork, and improve accuracy. Automated processes assist local governments in reducing costs as fewer resources and needed to complete tasks. Further, automation allows for more accurate and timely decision-making, enabling authorities in cities and towns to respond quickly to changing needs and opportunities. Undoubtedly, against this backdrop, it can be underscored that digital transformation also plays a crucial role in boosting service satisfaction and efficacy, as well as increasing openness, trust in, and involvement with local governments.[55]

The study has argued that South Africa's local government faces several service delivery issues. In addition, it observes that the COVID-19 pandemic created new fissures in local government and accentuated old service delivery problems.[56] Under these circumstances, a study by Gangneux and Joss draws from the experiences of Scottish local governments who associate crises as a functional catalyst of digital transformation in local government.[57] In many jurisdictions, heavy arguments have been put forward that achieving that transformation in the local government undoubtedly draws heavily on using digital technologies. Further, the increased availability of modern digital technologies and the lessons learned during the COVID-19 response strategies provide an elevated impetus for digitally transforming local government and service delivery in South Africa. Therefore, digital transformation enables the delivery of responsive, high-quality services at a cheaper cost and promptly "through increasingly shared infrastructures, administrative services and ICT platforms that support a reallocation of funding to frontline services as well as a reduction of overall costs."[58] For scholars, digital transformation means local governments in South Africa can optimise processes, cut costs, and stand as a chance to create new value by offering products and introducing new services.[59] In South Africa, the central government admits that new technologies revolutionise how services are delivered.[60] Notably, Shava and Vyas-Doorgapersad expose in their study that focussed on the City of Tshwane that the digital transformation of local government is linked to institutional readiness and improved revenue streams.[61]

The South African government has made significant progress in digitally reforming local government and service delivery in recent years. The study observed that the 2012 NDP 2030, the 2020 Foresight Exercise Report, the Decadal Plan for Science, Technology and Innovation 2022-2031, the 2016 White Paper on Policing, the 2016 White Paper on Safety and Security, White Paper on Science, Technology and Innovation, National Integrated ICT Policy, and the 2017 National e-Government Strategy and Roadmap ramp up South Africa's aspirations towards digital transformation. For example, the 2016 White Paper on Safety and Security, for example, aims to meet the National Development Plan 2030 goals of "creating safer communities" through the use of digital technologies to "promote "a society where all people live in safe environments, play a role in creating and maintaining safe environments, feel safe from crime and violence and the conditions that contribute to them, and have equal access to quality services when affected by crime and violence."[62] Crime and violence headline local government and service delivery problems in South Africa. The 2016 White Paper on Policing supports using digital technologies like AI in proactive policing, improving efficiency in crime investigation, and analysing current and future crime trends.[63] Hence, there is evidence that digital transformation is being premised as an excellent way for local governments to deliver services since cities are adopting digital technologies, such as AI to fight crime.[64]

Digital transformation of local government and service delivery can help improve public service efficiency, effectiveness, and customer experience. Conclusions drawn from a study by Shava and Vyas-Doorgapersad revealed that adopting digital innovations could be the solution for expediting Tshwane's urban service delivery.[65] By leveraging technologies, that include cloud computing, AI, and the Internet of Things,

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[55] OECD, "Digital Government Strategies for Transforming Public Services in the Welfare Areas."
[56] S. Narsiah, "Local Government and the Politics of Service Delivery in the Context of COVID-19," in *In The COVID-19 Pandemic in South Africa: A Review of Selected Local Governance and Policy Responses* , vol. 1 (Democracy Development Programme, 2021), 189–212.
[57] Gangneux and Joss, "Crisis as Driver of Digital Transformation? Scottish Local Governments' Response to COVID-19."
[58] OECD, "Digital Government Strategies for Transforming Public Services in the Welfare Areas," 9.
[59] Tekic and Koroteev, "From Disruptively Digital to Proudly Analog."
[60] National Planning Commission, *National Development Plan 2030: Our Future – Make It Work*.
[61] Shava and Vyas-Doorgapersad, "Fostering Digital Innovations to Accelerate Service Delivery in South African Local Government."
[62] Civilian Secretariat of Police, " White Paper on Safety and Security," *Http://Www.Policesecretariat.Gov.Za/Downloads/Bills/2016_White_Paper_on_Policing.Pdf*, 2016.
[63] Civilian Secretariat of Police, "White Paper on Policing," *Http://Www.Policesecretariat.Gov.Za/Downloads/Bills/2016_White_Paper_on_Policing.Pdf*, 2016.
[64] Asma Idder and Stephane Coulaux, "Artificial Intelligence in Criminal Justice: Invasion or Revolution?," *CMG Avocats & Associés, Paris. International Bar Association: The Global Voice of the Legal Profession. URL: Https://Www. Ibanet. Org/Dec-21-Ai-Criminal-Justice (Дата Звернення: 22.03. 2023)*, 2021.
[65] Shava and Vyas-Doorgapersad, "Fostering Digital Innovations to Accelerate Service Delivery in South African Local Government."

South African local governments can create more efficient and cost-effective processes. Such processes can improve customer service, increase transparency, and better decision-making. For instance, local authorities can adopt cloud computing to store and manage large amounts of data, making it easier to access and analyse. Cloud computing-assisted technologies can assist South African municipal governments in making better, more informed decisions based on real-time data, such as the number of people using a particular service, or the number of resources needed to deliver it. Similarly, AI can automate specific local government processes, such as customer service and case management. Thus, AI can help local governments streamline operations and reduce costs in South Africa. Additionally, data patterns and trends can be identified using AI, which can help local governments better understand the needs of their citizens.

LIKELY CHALLENGES AND OPPORTUNITIES OF DIGITALLY TRANSFORMING SOUTH AFRICAN LOCAL GOVERNMENT

With the advent of digital technologies, local governments can deliver some selected services to citizens through various platforms, including online and even with the assistance of mobile applications. Similarly, local governments can now capitalise on several digital tools such as cloud computing, big data, the Internet of Things and AI. While these platforms and tools have many benefits, studies on digital transformation point to several challenges for local government in areas such as public service delivery. For example, Kutnjak et al. demonstrate that digital transformation is a cumbersome and demanding process that requires the use of all corporate resources – human, technological, physical, organisational, and financial.[66] Similarly, the explains that the burden is beyond introducing digital technologies into public administrations (digitisation).[67] According to the OECD, digitisation is more transformative in that it results from the integration of digital technologies with initiatives to modernise the public sector.[68]

Digital transformation presents challenges to the local government sector in South Africa and beyond. Maremi et al. argue that rather than just replicating examples from other cases, historical, economic, and cultural elements of South Africa should be explored to produce favourable outcomes from digital transformation.[69] For instance, bemoan the deployment of AI surveillance systems in South African cities as reviving Apartheid's surveillance state.[70] Thus, local governments in South Africa must digitally transform in ways that address historical injustices and inequalities emanating from the legacy of apartheid. Against this background, relooking at local government and service delivery through the scope of digital transformation means overcoming challenges that include: the necessity for digital services to be accessible and user-friendly, a need for flexibility and adaptability in delivering digital services, and the criticality of cost-effective delivery methods. In addition, local government and service delivery in South Africa must overcome hindrances related to the scarcity of technical expertise for digital transformation, a lack of bandwidth and an inability to scale.[71]

While the digital transformation in South Africa must happen at an accelerated speed and the pressure to transform is immense, local governments lack adequate technical expertise and trained staff. The 2017 National e-Government Strategy and Roadmap noted the criticality of highly technical staff in implementing e-government projects in South Africa. Currently, many local government employees need to become more familiar with digital technologies and be fully versed in modern digital delivery methods. This is due, in part, to the fact that many local government employees need to be trained in ICTs. Secondly, digital transformation requires local governments to have more bandwidth and bandwidth-intensive applications which might not be available. In the meantime, many local governments in South Africa, particularly in rural areas, need more resources to install and maintain the necessary infrastructure suitable for digital transformation. This situation can inhibit the deliverance of services that require high levels of interaction, such as online surveys. It is then essential to highlight that most surveys need a high level of data input that can slow down the loading of the data.

One crucial challenge for local government in delivering digital services is ensuring that the services are accessible to everyone. During the COVID-19 pandemic's apex, citizens appreciated the simplicity of

[66] Kutnjak, Pihiri, and Furjan, "Digital Transformation Case Studies across Industries–Literature Review," 1293.
[67] OECD, "Digital Government Strategies for Transforming Public Services in the Welfare Areas."
[68] OECD, "Digital Government Strategies for Transforming Public Services in the Welfare Areas," 7.
[69] Keneilwe Maremi, Tumiso Thulare, and Marlien Herselman, "The Benefits of Digital Transformation Addressing the Hindrances and Challenges of E-Government Services in South Africa: A Scoping Review," in *2022 IST-Africa Conference (IST-Africa)* (IEEE, 2022), 1–8.
[70] K., Hao and H. Swart, "South Africa's Private Surveillance Machine Is Fuelling a Digital Apartheid," https://www.technologyreview.com/2022/04/19/1049996/south-africa-ai-surveillance-digital-apartheid, 2022.
[71] Maremi, Thulare, and Herselman, "The Benefits of Digital Transformation Addressing the Hindrances and Challenges of E-Government Services in South Africa: A Scoping Review."

government services delivered via digital technology, such as contact tracing apps and online permits.[72] Since the local government in South Africa operates at the behest of the constitution, it faces limitations in ensuring that everyone in their jurisdiction can access the services, regardless of location or disability. The digital divide is both a social and geographical problem in South Africa as acknowledged in the NDP 2030. Central government efforts to deal with the digital divide through the implementation of the 2016 National Integrated Information Communications Technology Policy White Paper have not significantly changed the South African digital landscape. Another challenge for local authorities is ensuring that the services provided are reliable and secure. Reliability and security become especially important when financial transactions are involved in the delivery of government services. Finally, in recent years, data security has become a severe challenge for concern. Hence, local governments must be able to deal with security issues about data use, storage and sharing. However, whilst there is no doubt that digital transformation can be a challenge to local government and service delivery, it also presents local governments with immense opportunities. According to Vial, digital transformation is a process in which digital technologies provide incentives for local government organizations to take action to obtain or preserve a competitive edge.[73] Adoption of digital transformation policies and initiatives allows for new forms of delivery and practices, which represent a chance to promote more inclusivity as well as increased efficiency and effectiveness in providing services to residents.[74] Digitisation is critical in pushing this transformation of the public sector as a whole since it can boost the productivity and inclusivity of service production and delivery in areas of public welfare.[75]

The following are some strategic opportunities if local government and service delivery are rethought from a digital transformation perspective. First, digital transformation allows local governments to work with partners and co-produce services. Working with partners helps local governments avoid duplication of efforts, increase efficiency and share best practices. Second, digital transformation gives room to the adoption of emerging technologies. Digital technologies have been argued in this article to deliver services more effectively and efficiently. Third, whilst local governments strive to be successful in delivering services, digital transformation allows collaborations with other government departments to ensure a coordinated effort. Fourthly, and most importantly, digital transformation enables local governments to systematically plan for change. In other words, digital technologies can assist in gathering, processing and analysis of data that can make predictions on demography, revenue, decision-making and risk-areas/issues. As a result, local governments can plan for change and be ready to adapt to an ever-changing environment. Digital transformation, for example, can occur during institutional change processes in which various actors can choose and make decisions.[76] Filgueiras et al. believe that if the change process is not adequately planned, it may result in coordination issues due to players' other objectives, resulting in incoherent and unequal change processes.[77]

Finally, with the benefit of hindsight, digital transformation allows local governments to practice and emphasise the in-house development and implementation of digital services, strategic outsourcing of digital services, and well-thought-out use of technology platforms. Each of these solutions has its benefits and drawbacks, which must be considered by local governments when deciding which approach to take. Furthermore, in recognition of the recent advancements in technology that enhance administrative efficiency in the public sector, it has become clear that citizens with new "digital minds" are more informed, networked, aware of their rights, and demanding than ever. Therefore, reasons that local governments must harness digital transformation to enhance transparency, accountability, and stakeholder interactions.

CONCLUSION

Globally, digital transformation is becoming a more prominent phenomenon in necessitating the agency of rethinking local government and service delivery. This is especially true for South African local governments facing various service delivery problems, needing help to keep up with technological changes and must act faster to deal with a restive as well as high expectant citizenry. The article sought to reimagine local government and service delivery from the viewpoint of digital transformation. It exposed that the digital transformation of local government and service delivery carries a lot of significance. The article argued that digital transformation can deal with historical local government challenges, resolve existing and new problems and position local government and service delivery into the future. The study revealed that digital transformation assists local

[72] Xiao, Han, and Zhang, "Exploring Driving Factors of Digital Transformation among Local Governments: Foundations for Smart City Construction in China."
[73] Vial, "Understanding Digital Transformation: A Review and a Research Agenda."
[74] Filgueiras, Flávio, and Palotti, "Digital Transformation and Public Service Delivery in Brazil."
[75] OECD, "Digital Government Strategies for Transforming Public Services in the Welfare Areas,"7.
[76] Filgueiras, Flávio, and Palotti, "Digital Transformation and Public Service Delivery in Brazil."
[77] Filgueiras, Flávio, and Palotti, "Digital Transformation and Public Service Delivery in Brazil."

governments in South Africa in fulfilling constitutional obligations, improving decision-making, streamlining operations, enhancing transparency, cutting costs, and delivering services efficiently.

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ABOUT AUTHORS

Costa Hofisi is a Research Director at North-West University, South Africa. His research interests include public sector innovation and public policy.

Lewis Edwin Chigova is a post-doctoral fellow at North-West University's Afrocentric Governance of Public Affairs. Lewis's research interests include public sector innovation, civic crowdfunding, co-production, digital local governance, climate-change-induced urban displacements, and diaspora philanthropy.