BARRIERS TO DIGITAL TRANSFORMATION IN ZIMBABWEAN LOCAL GOVERNMENTS

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ABSTRACT

This study explores the barriers to digital transformation in Zimbabwean local governments using a qualitative desktop review methodology. Drawing on the Technology Acceptance Model (TAM) and the Technology-Organization-Environment (TOE) framework, the analysis identifies key obstacles that hinder the uptake and institutionalisation of digital governance. The study categorises these barriers into four domains: political and regulatory, technological, economic, and social-human capital. Findings reveal outdated policies, weak coordination, infrastructure deficits, limited financial resources, digital illiteracy, and resistance to change as persistent challenges. Comparative insights from Indonesia, Denmark, and South Korea demonstrate how strategic policy alignment, digital literacy programmes, and inclusive governance models can support successful digital reforms. Based on these findings, the study recommends the development of a national digital strategy for local governments, investment in critical infrastructure, enhanced ICT capacity building, inclusive governance mechanisms, and sustainable financing models. The paper concludes with a call for empirical research to assess the real-world experiences of stakeholders and track the evolution of digital governance capacity over time. These insights aim to guide policymakers, development partners, and local authorities toward a more inclusive and resilient digital future for Zimbabwean municipalities.

Keywords: Digital Transformation, Local Government, E-Governance, Zimbabwe, ICT Capacity, Policy Reform, Technology Acceptance Model (TAM), Technology-Organization-Environment (TOE).

1. INTRODUCTION

Digital transformation has emerged as a vital lever for enhancing efficiency, accountability, and responsiveness within local government structures. Globally, the adoption of digital technologies has significantly influenced how governments deliver services, enforce legislation, and engage with citizens (Alvarenga et al., 2020; Mountasser & Abdellatif, 2023). In developing countries such as Zimbabwe, digital transformation presents a strategic opportunity for local authorities to improve service provision and governance (Akgün et al., 2024). Despite growing recognition of these benefits, Zimbabwean local governments face considerable barriers that inhibit effective digital transformation. These include infrastructural, institutional, economic, and social challenges. Although there is substantial research on e-government and public sector digitisation in broader African and developing contexts, there remains a significant gap in literature focusing specifically on the structural impediments faced by Zimbabwean municipalities.

Research Aim

This study aims to explore the primary barriers hindering digital transformation within Zimbabwean local governments and to suggest context-specific strategies for overcoming these challenges.

Research Questions

- What are the key barriers to digital transformation in Zimbabwean local governments?
- How do these barriers affect the implementation and outcomes of digital initiatives?
- What policy and institutional interventions are necessary to enable effective and sustainable digital transformation in local governance?

Key Concepts

Digital transformation in public administration is defined here as the adoption of digital technologies to provide citizens with timely access to information and services, improve transparency, and streamline bureaucratic functions (Belyakova, 2021; OECD, 2018).

Digital Transformation in Public Administration

Digital transformation refers to the comprehensive integration of digital technologies into all aspects of public sector operations. In the context of local government, this entails the use of ICTs to enhance the efficiency, accessibility, and responsiveness of public services. It goes beyond mere digitisation (e.g., converting paper records to digital formats) to encompass process innovation, citizen-centric service delivery, and data-driven decision-making (Belyakova, 2021; OECD, 2018). Successful digital transformation involves organisational change, policy reform, and a shift in institutional culture to embrace agility, openness, and continuous innovation.

E-Governance

E-governance involves the application of information and communication technologies (ICTs) to improve the activities of public sector institutions. It includes the provision of services through digital platforms, online citizen engagement, and electronic communication between departments and stakeholders. E-governance aims to promote transparency, reduce corruption, and foster accountability in the delivery of public goods and services (Heeks, 2006).

Barriers to Digital Transformation

Barriers are defined as structural, institutional, or contextual factors that obstruct the adoption or effective implementation of digital initiatives. These may include outdated regulations, inadequate infrastructure, low digital literacy, limited funding, organisational resistance to change, and fragmented governance structures (Mhlanga et al., 2023; Munyede & Mapuva, 2019).

Technology Acceptance

Drawing from the Technology Acceptance Model (TAM), this concept refers to how individuals perceive and adopt technology based on two key determinants: perceived usefulness and perceived ease of use (Davis, 1989). In the local government context, these perceptions influence how municipal employees and citizens interact with digital systems.

Institutional Readiness

Based on the Technology-Organization-Environment (TOE) framework, digital transformation is influenced by the technological infrastructure available, the internal capacity of institutions (including leadership and human resources), and the broader policy and economic environment in which they operate (Tornatzky & Fleischer, 1990). Understanding these contextual dimensions is crucial for identifying entry points for reform.

Theoretical Framework(S)

This study draws from two frameworks, (i)the Technology Acceptance Model (TAM), which focuses on perceived ease of use and usefulness (Davis, 1989) and (ii) the Technology-Organization-Environment (TOE) framework, which considers technological, organizational, and environmental contexts (Tornatzky & Fleischer, 1990). Together, these frameworks provide a robust lens for analysing the multifaceted barriers to digital transformation in Zimbabwean local governments.

Technology Acceptance Model (TAM)

Developed by Davis (1989), the Technology Acceptance Model (TAM) is one of the most widely used models for explaining and predicting user acceptance of information technology. The model posits that two primary factors influence the adoption of new technologies:

- Perceived Usefulness (PU): The degree to which a person believes that using a particular system would enhance their job performance.
- Perceived Ease of Use (PEOU): The extent to which a person believes that using the system would be free of effort.

In the context of local government in Zimbabwe, TAM helps to explain why municipal staff may resist adopting digital tools. If employees perceive digital systems as complex or irrelevant to their daily duties, they are unlikely to embrace them. This resistance is further compounded by limited exposure to digital technologies and insufficient training, leading to low confidence and fear of redundancy. Moreover, TAM is relevant for understanding citizen participation in digital governance. If the public does not see the usefulness or ease of using online platforms to access services, report issues, or participate in decision-making, engagement levels will remain low. Therefore, addressing the human behavioural component is as important as improving technological infrastructure.

Technology-Organization-Environment (TOE) Framework

The Technology-Organization-Environment (TOE) framework, introduced by Tornatzky and Fleischer (1990), provides a broader perspective by identifying three critical contexts that influence an organisation's adoption of technology:

- Technological Context: Refers to the internal and external technologies relevant to the organisation. In Zimbabwean local authorities, this includes internet availability, hardware and software systems, cybersecurity, and the general state of ICT infrastructure. Many municipalities lack reliable access to modern digital tools, which impedes the ability to initiate or scale digital transformation.
- Organizational Context: Encompasses the internal characteristics of the organisation, such as size, structure, managerial support, available resources, and human capital. Zimbabwean local governments often operate in highly bureaucratic environments, with rigid administrative structures and a deficit of skilled personnel. These organisational constraints limit their flexibility to adopt and implement new technologies.
- Environmental Context: Involves external factors such as regulatory policies, public pressure, socio-economic conditions, and technological ecosystem maturity. Zimbabwe's political and economic instability, limited public-private partnerships, high poverty levels, and lack of regulatory support present significant environmental hurdles to digital innovation.

By integrating the TOE framework, this study moves beyond individual perceptions (as emphasised in TAM) and considers the broader institutional, infrastructural, and policy environment. This combination allows for a more holistic analysis of why digital transformation initiatives often fail to gain traction at the local government level in Zimbabwe.

2. RESEARCH METHODS

This study employed a qualitative desktop review methodology to explore the barriers to digital transformation in Zimbabwean local governments. This approach is particularly suited for exploratory research where access to primary data may be constrained, and where existing literature, reports, and institutional documents can offer valuable insights into policy frameworks, implementation gaps, and governance practices.

Research Design

The research design was interpretivist in nature, grounded in the assumption that digital transformation is socially and institutionally embedded. The desktop review method allowed for a nuanced and context-sensitive understanding of how institutional, technological, and environmental dynamics interact to either facilitate or hinder digital innovation within local governance structures. The study focused on synthesising evidence from diverse sources to identify recurring themes, institutional patterns, and sectoral gaps.

Sampling Strategy

The study adopted a purposive sampling strategy to select relevant and credible secondary sources. Selection criteria included:

- Relevance to digital transformation, governance, public administration, or ICT adoption within local government.
- Geographical focus on Zimbabwe, with comparative insights from Southern Africa and other Global South contexts where appropriate.
- Source credibility, favouring peer-reviewed academic literature, official government reports, multilateral agency publications (e.g., World Bank, UNDP), and institutional white papers.
- Recency, with a focus on literature published between 2010 and 2024 to ensure contextual relevance, while also incorporating foundational works for theoretical grounding.

Approximately 60 documents were reviewed in total, comprising journal articles, government policy frameworks, municipal performance audits, digital strategy documents, and NGO reports on e-governance and service delivery.

Data Analysis

Data were analysed using thematic content analysis, a qualitative technique well-suited for synthesising large volumes of textual material. The process involved several stages:

- Initial coding to identify recurrent concepts and terminology related to digital transformation barriers.
- Categorisation of data into thematic clusters aligned with the TAM and TOE frameworks (e.g., technological capacity, human resource limitations, institutional inertia, environmental constraints).
- Comparative analysis to highlight variations and commonalities across municipalities and between Zimbabwe and other developing country contexts. NVivo software was used to assist with coding and to manage large volumes of data efficiently, ensuring that emergent themes were grounded in the reviewed material.

Trustworthiness and Credibility of Data

To enhance the trustworthiness of the findings, the study adhered to Lincoln and Guba's (1985) criteria for qualitative rigor:

- Credibility was ensured through triangulation of data sources, drawing on academic literature, policy documents, and empirical studies.
- Transferability was addressed by providing rich, contextual descriptions that allow readers to assess the applicability of findings to similar contexts.
- Dependability was reinforced by maintaining a clear audit trail of how documents were sourced, coded, and analysed.
- Confirmability was achieved by maintaining objectivity in interpretation and regularly cross-checking emergent themes with established theoretical constructs from the TAM and TOE frameworks.

This rigorous methodological approach strengthens the validity of the study's conclusions and ensures that the findings are robust, contextualised, and policy relevant.

3. RESULTS

The analysis of the reviewed literature and policy documents revealed four major categories of barriers to digital transformation in Zimbabwean local governments. These categories are deeply interwoven, reflecting systemic weaknesses within the technological, institutional, and socio-economic landscape.

Political and Regulatory Barriers

One of the most significant challenges identified is the absence of an enabling regulatory environment. Local government operations are still governed by outdated statutes such as the Urban Councils Act (Chapter 29:15) and Rural District Councils Act (Chapter 29:13), which were not designed with digital governance in mind (Mthwazi, 2022). These legal frameworks offer limited guidance on the adoption, procurement, and deployment of digital tools or platforms. Furthermore, there is a lack of cohesive digital transformation policy at both national and municipal levels. Various e-government initiatives have been introduced in a piecemeal fashion, often driven by donor support or isolated ministerial directives rather than through coordinated strategies. This fragmentation of digital policies results in limited interoperability between government departments, inefficiencies in procurement, and duplication of ICT investments (Nhengu, 2023; Mhlanga et al., 2023).

Technological Barriers

Local governments across Zimbabwe operate within an ecosystem marked by serious infrastructural deficits. Basic prerequisites for digital governance—such as reliable electricity, broadband internet, and secure data storage infrastructure—are largely inadequate. Rural municipalities are particularly disadvantaged, facing frequent power outages, weak mobile network coverage, and unaffordable or unavailable internet services (USAID, 2023). Additionally, the absence of government-owned digital infrastructure poses major sustainability challenges. Most municipalities rely heavily on third-party vendors for software and cloud services, which not only escalates operational costs but also undermines data sovereignty and system security. As Mahlangu and Ruhode (2021) note, this over-reliance on external providers reduces government autonomy and makes long-term system maintenance precarious.

Economic Barriers

Zimbabwean local governments face acute budgetary constraints that limit their ability to invest in ICT infrastructure, technical support, or personnel training. Much of their revenue is allocated to salaries and debt servicing, leaving insufficient funds for innovation and digital transformation projects (Shava & Hofisi, 2017). Moreover, the high cost of internet access and digital devices exacerbates inequality in service access and citizen participation. Households in low-income and peri-urban areas often cannot afford the smartphones, data bundles, or electricity needed to benefit from digital platforms. This reality impedes the inclusivity of e-governance and deepens the digital divide (Mapfumo & Mutereko, 2020).

Social and Human Capital Barriers

Digital transformation efforts are also undermined by entrenched bureaucratic cultures within municipal administrations. Many officials continue to prefer manual systems that enable discretion and, in some cases, foster corruption through opaque procedures (Munyede & Mapuva, 2019). This resistance to change is often rooted in concerns about job security, loss of influence, or unfamiliarity with ICT processes. Another critical constraint is digital illiteracy. Despite the proliferation of ICT in other sectors, many local government employees lack the necessary technical competencies to operate and manage digital systems. Training programmes, where they exist, are sporadic and poorly institutionalised. Furthermore, digital human resource

management systems (HRMS) are either outdated or non-existent in many councils, making staff development planning difficult (Tapiwa et al., 2022; Furusa & Coleman, 2018).

4. DISCUSSION OF FINDINGS

The findings resonate with broader literature on digital transformation in the Global South, especially in contexts marked by weak institutions and socio-economic fragility. The Technology Acceptance Model (TAM) helps explain the inertia observed among local government personnel: perceived usefulness and perceived ease of use are critical for technology adoption, yet both are low due to the lack of supportive infrastructure and training. Where officials do not see clear benefits or fear job displacement, adoption is likely to be superficial or resisted altogether. The Technology-Organization-Environment (TOE) framework provides a broader systems-level understanding of the transformation gap. At the technological level, poor infrastructure and inadequate tools constrain innovation. Organizationally, bureaucratic rigidity, poor leadership, and limited change management capacity weaken reform efforts. Environmentally, economic instability, political interference, and regulatory ambiguity further discourage sustained investment in digital initiatives. Collectively, these frameworks highlight the interdependence of structural factors: it is not enough to introduce digital systems without parallel reforms in skills, policy, and infrastructure. Successful transformation requires a comprehensive and integrated approach that recognises both technological capabilities and institutional readiness.

Comparative Insights

International experiences offer valuable lessons for Zimbabwean local governments seeking to navigate the complex terrain of digital transformation. By examining how other countries, both in the Global North and South, have addressed similar barriers, this section highlights practical strategies and institutional innovations that could inform context-specific solutions. These global case studies demonstrate that effective digital governance hinges not only on technology, but also on political will, intergovernmental coordination, inclusive policy frameworks, and sustained investment in human capital.

Indonesia: Integrated National ICT Master Plan

Indonesia offers a compelling case of how coordinated national planning can accelerate digital transformation across levels of government. The government introduced the National ICT Master Plan (2010–2025), which serves as a unified framework to guide both central and local government ICT initiatives (Meyerhoff Nielsen & Jordanoski, 2020). The plan prioritised infrastructure development, digital literacy, e-governance, and regulatory reforms. A key strength of Indonesia's approach was the alignment of national objectives with local needs through regional digital roadmaps. This vertical integration enabled targeted investments and monitoring mechanisms that ensured transparency and efficiency. For instance, Indonesia's Smart City programme, piloted in cities like Bandung and Jakarta, leveraged digital technologies for public service delivery, traffic management, and citizen engagement. The implementation success was largely attributed to clear policy guidance, financial incentives, and the fostering of local ICT champions within municipal governments.

Denmark: Digital Literacy and Citizen-Centric Services

Denmark is globally recognised for its digital governance maturity, consistently ranking among the top countries in the UN E-Government Development Index. One of its most effective strategies has been a long-term investment in digital literacy across public servants and the general population. The government institutionalised digital training for municipal staff and introduced nationwide digital learning platforms to support citizen engagement with e-services. Denmark's commitment to transparent, user-friendly public services is evident in platforms like borger.dk, a centralised digital portal for citizens to access over 100

services from healthcare and tax to education and licensing. This ease of access is supported by secure digital identity systems (NemID and MitID), making interactions seamless and trustworthy. More importantly, Denmark's digital transformation is guided by principles of inclusivity, ensuring that no citizen is left behind due to age, disability, or lack of access to technology.

South Korea: E-Governance Rooted in Innovation and Participation

South Korea has embedded e-governance into its broader national innovation culture, driven by strong political commitment and a proactive policy environment. The Korean government implemented the e-Korea Vision 2006 and subsequent Smart Korea strategies, which positioned ICT as a pillar of socio-economic development. These initiatives enabled the transformation of public administration, with services delivered via an integrated online government platform (Government 24). What distinguishes South Korea is its participatory approach citizens are actively involved in co-creating digital solutions. Platforms such as e-People allow users to file complaints, propose ideas, and track policy feedback in real time. Public trust is reinforced through transparency, fast response times, and a culture of innovation that permeates both central and local government operations. Moreover, continuous investment in ICT infrastructure, cybersecurity, and skills development ensures the system's sustainability and adaptability.

Lessons Learnt from International Best Practices

The comparative case studies of Indonesia, Denmark, and South Korea reveal that successful digital transformation in local governance hinges on strategic alignment, inclusive capacity-building, and citizen-centred innovation. Indonesia demonstrates the importance of national-local coordination and structured planning to harmonise priorities and optimise resources. Denmark underscores how digital literacy and inclusive access to user-friendly services can promote widespread adoption and trust in e-governance. South Korea highlights the role of strong political will, innovation culture, and participatory platforms in embedding digital systems into everyday governance. Collectively, these experiences show that digital transformation is not solely a technical endeavour but a multidimensional process requiring leadership, policy coherence, public engagement, and sustainable investment.

Policy Recommendations

Digital transformation in Zimbabwean local governments is currently constrained by multi-layered, interdependent barriers. These range from infrastructural and fiscal deficits to outdated policies, digital skill gaps, and resistance from entrenched bureaucracies. Efforts to introduce e-governance or smart technologies are often fragmented, underfunded, and poorly institutionalised. The success of digital governance initiatives will depend on the extent to which political leadership, institutional reform, and infrastructure development can be aligned. Without addressing these foundational issues, digitalisation risks becoming a symbolic exercise with little real impact on service delivery or governance quality.

To accelerate digital transformation in Zimbabwean local governments, several interlinked policy interventions are essential. First, the government should develop a cohesive National Digital Strategy specifically tailored for local governments, ensuring that municipalities have clear digital priorities, implementation roadmaps, regulatory support, and accountability mechanisms. Second, critical infrastructure investment must be prioritised, including the expansion of broadband and mobile internet in underserved areas, the stabilisation of electricity supply, and the adoption of renewable energy solutions to sustain ICT operations. Third, public sector ICT capacity should be strengthened by institutionalising digital literacy and upskilling programs through partnerships with universities and training institutes to deliver certified courses for municipal staff. Fourth, inclusive and participatory governance should be promoted by involving communities in the co-creation and rollout of digital platforms, using tools such as online feedback systems, digital town halls, and

participatory budgeting apps to increase civic engagement. Lastly, sustainable and diversified funding is needed; this includes leveraging public-private partnerships (PPPs), tapping into development finance and diaspora investments, and establishing local innovation funds to support community-driven digital solutions.

Areas For Future Research

This study underscores the need for empirical, field-based research to enrich and validate the insights drawn from the desktop review. Future investigations could employ mixed-methods approaches—integrating surveys, in-depth interviews, and ethnographic observations—to explore the lived experiences of municipal staff in adopting and utilising digital tools, as well as citizen perceptions regarding the accessibility, relevance, and usability of e-governance platforms. Additionally, examining the role of local leadership and political dynamics in facilitating or obstructing digital reforms would provide valuable context. Comparative case studies between high-performing and underperforming municipalities could help identify best practices, structural enablers, and localised innovation pathways. Longitudinal studies are also recommended to assess how digital governance capacity evolves in response to changing political, financial, and technological conditions, thereby offering a dynamic understanding of digital transformation trajectories in Zimbabwe's local government sector.

5. CONCLUSION

In conclusion, this study highlights the significant barriers that impede digital transformation in Zimbabwean local governments, including infrastructural deficits, limited financial resources, outdated regulatory frameworks, and low levels of digital literacy. These challenges are compounded by entrenched bureaucratic cultures resistant to change and weak policy alignment, which hinder the adoption of digital tools and e-governance initiatives. Drawing on the Technology Acceptance Model (TAM) and the Technology-Organization-Environment (TOE) framework, the research reveals the complex interplay between technological, organizational, and environmental factors that shape digital adoption in the public sector. The comparative insights from international cases such as Indonesia, Denmark, and South Korea demonstrate that successful digital transformation requires a strong political commitment, intergovernmental coordination, robust digital literacy initiatives, and inclusive governance. To overcome these barriers, the study recommends the development of a national digital strategy, investments in critical infrastructure, strengthening of public sector ICT capacity, and the promotion of participatory governance. Furthermore, securing sustainable funding and fostering public-private partnerships are essential to supporting long-term ICT projects. Future research should focus on empirical, field-based studies that explore the lived experiences of municipal staff and citizens, as well as the role of local leadership in driving or hindering digital reforms. Ultimately, a comprehensive, inclusive approach is necessary for Zimbabwe to realise the full potential of digital transformation in local governance.

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