

From Bureaucracy to Bytes: Digital Transformation and the Future of Local Governance

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Abstract

The rapid advancement of technology is reshaping local governance, driving a shift from traditional bureaucratic processes toward digital systems. Digital transformation is not merely the modernization of existing procedures; it represents a fundamental change in how governments operate, deliver services, and interact with citizens. Local governments increasingly adopt digital tools to enhance service efficiency, transparency, and public participation, aligning with global expectations of governance in an era of rapid technological change (Portet XG et al.). Research shows that the success of digital government depends on institutional readiness, technological capacity, and socio-economic context. Technology alone is insufficient; digital literacy, collaboration, trust, and community engagement are equally essential (Budhwar P et al.). While digitalization offers benefits—such as streamlined processes and improved access to information (Kunhibava S et al.)—it also presents challenges, including data privacy concerns, digital exclusion, and the risk of widening inequalities (Dwivedi et al.). Effective digital transformation requires strong policy frameworks to guide implementation, ensure accountability, and align technological initiatives with local needs (Alliou H et al.). Continuous adaptation and feedback loops are also crucial as citizen expectations and technologies evolve (Dempere J et al.). Without a clear vision, digitalization risks becoming superficial, merely replicating outdated bureaucratic procedures in digital form—what some term “digital bureaucracy.” Ultimately, moving “from bureaucracy to bytes” demands balancing innovation with inclusivity. The future of local governance hinges on integrating technology with principles of participation, transparency, and equity, ensuring that digital transformation benefits all members of the community (P. V. Fokin).

Keywords: *Digital Transformation, Local Governance, E-Government, Public Sector, Innovation, Citizen Participation*



INTRODUCTION

The evolution of local governance increasingly reflects a dynamic interaction between administrative practices and digital technologies. In recent years, scholars and policymakers have focused on how traditional bureaucratic structures are being transformed into digitally enabled governance systems. This transformation not only alters internal governmental processes but also reshapes the relationship between local governments and citizens through improved transparency, service efficiency, and public engagement (Ginesta Portet et al., 2024; Haug et al., 2023; Mora et al., 2023). As local governments move away from rigid administrative models, digital transformation is widely regarded as a strategic pathway to enhancing governmental responsiveness and democratic participation.

Digital transformation in local government refers to the integration of digital technologies across organizational processes, leading to fundamental changes in decision-making, service delivery, and institutional culture. Through automation, data integration, and digital platforms, governments are increasingly able to generate and analyze large volumes of data to support evidence-based policymaking (Madan & Ashok, 2022; Mora et al., 2023). Furthermore, digital platforms facilitate greater citizen participation by enabling interactive communication channels between governments and communities, which can strengthen trust and improve public satisfaction when citizens feel involved in governance processes (Haug et al., 2023).

However, digital transformation extends beyond technological upgrades; it requires a reconfiguration of governance structures and values, particularly concerning equity and accessibility. Unequal access to digital infrastructure and skills may exacerbate existing social disparities if inclusivity is not actively addressed. Prior studies have highlighted the risk of marginalizing vulnerable groups during digital transitions, emphasizing the need for inclusive governance strategies that ensure equitable access to digital public services (Kunhibava et al., 2023; Dwivedi et al., 2022). Without deliberate policy interventions, digital transformation may unintentionally reinforce social exclusion rather than mitigate it.

Financial capacity is another critical factor influencing the success of digital transformation initiatives in local governments. Budget constraints often limit the ability of municipalities to invest in advanced digital systems. Nevertheless, empirical evidence suggests that early investment in digital technologies can yield long-term efficiency gains, cost savings, and improved institutional performance (Allioui & Mourdi, 2023; Deloitte, 2024). By automating routine administrative tasks and optimizing resource allocation, local governments may redirect financial resources

toward essential public services. Despite these potential benefits, gaining political and public support for digital investments requires transparency, accountability, and clear demonstration of value creation (Dempere et al., 2023).

The growing reliance on digital technologies also intensifies the relationship between governments and private technology providers. While partnerships with private actors can enhance technical capacity and innovation, they raise concerns regarding data privacy, accountability, and public trust. As governments increasingly depend on external digital platforms, safeguarding citizens' rights and ensuring ethical technology use become paramount (Saeed & Omlin, 2023). The challenge lies in balancing efficiency gains with the protection of personal data and democratic values.

These developments underscore the importance of understanding digital transformation not merely as a technical process, but as a governance reform with significant legal, ethical, and societal implications. From a constitutional and policy perspective, digital governance reforms must align with principles of legality, fairness, and public accountability (Fokin, 2025). Consequently, digital transformation should aim not only to improve administrative efficiency but also to strengthen democratic governance and social inclusion.

Against this backdrop, this study examines how digital transformation reshapes local government practices, identifies key challenges and enabling factors, and explores its potential to enhance public service quality and governance outcomes. Building on prior research on digital transformation barriers, public sector innovation, and governance reform, this study contributes to a deeper understanding of how local governments can leverage digital technologies to achieve more effective, inclusive, and sustainable governance (Gkrimpizi et al., 2023; Haug et al., 2023; Madan & Ashok, 2022; Mora et al., 2023; Tumpa & Naeni, 2025; Wang et al., 2022).

RESEARCH PROBLEM

The research problem in digital transformation within local governance lies in the complex interaction between technological innovation and institutional change. The shift from traditional bureaucratic systems to digitally enabled governance represents not merely a technological upgrade but a fundamental transformation of governance structures, administrative processes, and modes of citizen engagement (Ginesta Portet et al., 2024).

Digital initiatives in local governments are commonly expected to improve efficiency, transparency, and responsiveness, particularly as municipalities face increasing pressure to deliver high-quality public services under fiscal constraints and growing public scrutiny (Mora et al., 2023). However, existing literature has yet to provide a comprehensive understanding of the conditions under which digital transformation initiatives succeed across diverse local contexts (Gkrimpizi et al., 2023).

A further research problem concerns the tendency to overestimate the transformative capacity of digital technologies, which may lead local governments to invest heavily in technological solutions without achieving meaningful organizational or service-level improvements (Budhwar et al., 2023). This issue is compounded by variations in institutional capacity between metropolitan governments and smaller or resource-constrained municipalities (Madan & Ashok, 2022).

Citizen engagement represents another critical dimension of the research problem, as socio-demographic characteristics such as age, income, education, and digital literacy significantly influence citizens' ability to access and utilize digital public services (Kunhibava et al., 2023). When these disparities are insufficiently addressed, digital governance initiatives risk excluding certain population groups and weakening democratic participation (Dwivedi et al., 2022).

The rapid adoption of advanced digital technologies, including artificial intelligence, machine learning, and data analytics, further complicates local government digital transformation efforts. While these technologies offer opportunities to enhance decision-making and administrative efficiency, they also introduce challenges related to data privacy, cybersecurity, and ethical governance that may undermine public trust if inadequately managed (Saeed & Omlin, 2023).

Another unresolved issue concerns the limited integration of multi-stakeholder collaboration within existing digital governance frameworks. Effective digital transformation requires not only top-down implementation but also meaningful participation from citizens, public servants, and private-sector actors to ensure that digital solutions align with community needs (Tumpa & Naeni, 2025).

The absence of adequate institutional mechanisms for capacity-building and skills development among government employees and citizens may further constrain the sustainability of digital transformation initiatives. Without deliberate efforts to enhance digital competencies, inequalities in access to public services may persist or intensify, particularly among marginalized communities (Gkrimpizi et al., 2023).

In addition, digital transformation in local governance must be understood within the broader context of sustainability and resilience. Global challenges such as climate change and public health crises have underscored the need for adaptive and data-driven governance systems capable of responding effectively to complex and uncertain conditions (Calvin et al., 2023).

Digital tools also hold the potential to strengthen community resilience and improve crisis management by enabling more responsive and coordinated governance practices. Nevertheless, empirical evidence remains limited regarding how these technologies can be deployed while maintaining inclusivity, accountability, and democratic legitimacy (Luo et al., 2023).

Ultimately, the central research problem lies in identifying how local governments can leverage digital transformation to improve governance performance while preserving democratic values, equity, and public trust. Addressing this problem requires a systematic scholarly approach to uncover the institutional, technological, and social factors that enable or constrain successful digital transformation in local governance contexts (Dwivedi et al., 2023).

Table 1. *Digital Transformation in Local Governance: Key Statistics*

Indicator	Value
Global GovTech Maturity Index (GTMI) Average Score	0.552 (2022)
Percentage of High-Income Economies in Group A of GTMI	58% (2022)
Percentage of Lower-Middle and Low-Income Economies in Group A of GTMI	16% each (2022)
Percentage of Latin American and Caribbean Countries with Dedicated Career Track for Data Analysts	12% (2025)
Percentage of Latin American and Caribbean Countries with Framework to Vet and Improve Data Quality	25% (2025)
Percentage of Latin American and Caribbean Countries with Interoperability Framework for Information Exchange Among Government Organizations	Less than 35% (2025)
Percentage of Latin American and Caribbean Countries with Centralized Web Portals for Citizen Feedback	Less than 35% (2025)
Percentage of Latin American and Caribbean Countries with Open Government Data Commitments Implemented Transparently	Less than 35% (2025)
Percentage of Latin American and Caribbean Countries with Dedicated Career Track for Data Analysts	12% (2025)
Percentage of Latin American and Caribbean Countries with Framework to Vet and Improve Data Quality	25% (2025)

Source: Analysis Results, 2025

LITERATURE REVIEW

The literature on digital transformation in local governance highlights a significant shift from traditional bureaucratic models toward data-driven and technology-enabled administrative systems. This transformation is widely understood as a fundamental change in how local governments organize decision-making processes, deliver public services, and interact with citizens (Ginesta Portet et al., 2024).

Several studies emphasize that the adoption of digital technologies can enhance administrative efficiency and transparency, thereby strengthening public trust in local government institutions. Digital platforms enable faster service delivery and clearer

information flows, which contribute to improved accountability and responsiveness in governance practices (Mora et al., 2023).

Research on digital governance also suggests that technological tools can expand opportunities for citizen participation by facilitating access to information and enabling more interactive engagement mechanisms. These developments support more inclusive decision-making processes by lowering barriers to participation and improving communication between governments and citizens (Budhwar et al., 2023).

However, the literature consistently warns that digital transformation may exacerbate social inequalities if disparities in access to technology and digital skills are not adequately addressed. The persistence of the digital divide remains a critical concern, particularly for vulnerable populations who may be excluded from digital public services (Kunhibava et al., 2023).

Scholars further argue that uneven digital literacy and infrastructural gaps can limit the effectiveness of digital governance initiatives, especially in contexts characterized by socioeconomic disparities. Without targeted inclusion strategies, digital transformation risks reinforcing existing power imbalances rather than promoting equitable governance outcomes (Dwivedi et al., 2022).

In addition to social considerations, digital transformation has significant implications for public service delivery and resource management. Empirical studies demonstrate that data-driven technologies can improve urban planning, optimize resource allocation, and enhance operational efficiency in local government settings (Allioui & Mourdi, 2023).

Despite these benefits, the increased reliance on algorithmic systems raises important ethical concerns related to bias, accountability, and transparency in public decision-making. The literature highlights the need for critical scrutiny of how digital tools are designed and implemented to prevent unintended negative consequences in governance outcomes (Saeed & Omlin, 2023).

From an institutional perspective, successful digital transformation is closely linked to organizational culture and the willingness of public officials to embrace change. Legal and policy analyses emphasize that digital reforms must align with constitutional principles and administrative norms to ensure legitimacy and long-term sustainability (Fokin, 2025).

Studies on organizational change further underscore the role of human factors in shaping digital transformation outcomes. Resistance to change within bureaucratic structures can limit the innovative potential of digital technologies, resulting in uneven or superficial reforms (Gkrimpizi et al., 2023).

Leadership emerges as a central theme in the digital governance literature, with multiple studies identifying visionary and supportive leadership as a key driver of successful transformation. Leaders who actively promote digital strategies and foster

innovation-oriented cultures can significantly enhance institutional adaptability and resilience (Haug et al., 2023).

Complementing leadership capacity, continuous training and skill development are identified as essential components of effective digital transformation. Investments in human capital enable public sector employees to fully leverage digital tools and adapt to rapidly evolving technological environments (Mora et al., 2023).

The literature also situates digital transformation within broader discussions on sustainability and resilience in governance. Global challenges such as climate change and public health crises highlight the importance of adaptive, data-informed governance systems capable of responding to complex and uncertain conditions (Calvin et al., 2023).

Digital technologies are increasingly recognized for their potential to support resilience-building efforts by enhancing coordination, monitoring, and crisis response at the local level. However, empirical evidence remains limited regarding how these technologies can simultaneously promote efficiency, inclusivity, and democratic accountability (Luo et al., 2023).

Overall, the literature demonstrates that while digital transformation offers substantial opportunities to improve local governance, its outcomes are highly contingent on social, organizational, and institutional contexts. Systematic reviews emphasize the need for integrative analytical frameworks that account for technological, human, and governance dimensions in assessing digital transformation initiatives (Madan & Ashok, 2022).

Recent multidisciplinary perspectives further argue that emerging digital technologies, including artificial intelligence, require careful governance to balance innovation with ethical considerations and public trust. This highlights the growing need for research that critically examines governance mechanisms surrounding advanced digital systems (Dwivedi et al., 2023).

Finally, studies on digital governance stress the importance of multi-stakeholder collaboration in ensuring the success of digital initiatives. Engaging citizens, public servants, and private-sector actors in co-creation processes can enhance legitimacy, trust, and long-term sustainability of digital governance reforms (Tumpa & Naeni, 2025).

Table 2. Digital Transformation in Local Governance: Key Statistics and Findings

Study	Source	Country	Year	Key Findings
State of Digital Local Government	Local Government Association	United Kingdom	2023	18% of IT posts in councils were vacant as of October 2023.,70% of councils reported that the main reason for staff leaving was higher pay elsewhere.,59%

				of the workforce are unable to perform all basic digital tasks, with 8% unable to perform any basic digital tasks.
Citizen Perceptions of Digital Transformation in Local Municipalities	South African Journal of Information Management	South Africa	2023	Digital transformation provides citizens with improved 24/7 public services, data-driven decision-making, enhanced productivity and efficiency, cost savings, and bolstered transparency and accountability.
Global Governments Boost Productivity and Service by Embracing Digital Transformation	Deloitte Insights	Global	2024	Integrated data has had a profound impact on city operations, with real-time data from various sources improving city management.
Does Government Digital Transformation Drive High-Quality Urban Economic Development?	MDPI	China	2023	Pilot cities with e-government platforms increased their level of high-quality development by an average of 22.75% over six years.
The Role of Institutional and Operational Factors in the Digitalization of Large Local Governments	Emerald Insight	Italy	2023	Municipalities with higher indebtedness tend to show lower digitalization levels.
Digital Transformation of National Statistical Offices	OECD	Global	2022	National statistical offices must adapt to the digitalized world to meet the growing expectations of data users.
Impact of Regional Digital Transformation on Public Health	BMC Public Health	China	2025	Digital transformation promotes public health by enhancing life expectancy.

Source: Analysis Results, 2025

RESEARCH METHODS

This study employs a mixed-methods research design to examine the impact of digital transformation on local governance structures and practices. A mixed-methods approach is particularly suitable for capturing both measurable governance outcomes

and the contextual experiences of actors involved in digital governance processes (Madan & Ashok, 2022).

The quantitative component of the study involves the collection of data from multiple local government institutions across different regions. This data focuses on measurable indicators such as the adoption level of digital tools, patterns of citizen engagement, and changes in service delivery efficiency to assess the relationship between digital transformation and governance performance (Ginesta Portet et al., 2024).

Quantitative data are analyzed using statistical techniques to identify trends and correlations between digitalization intensity and governance effectiveness. This analytical approach enables the identification of systematic patterns that reflect how digital tools influence institutional performance in local government contexts (Mora et al., 2023).

Complementing the quantitative analysis, the qualitative component consists of semi-structured interviews with local government officials, information technology specialists, and community representatives. Semi-structured interviews allow for an in-depth exploration of perceptions, experiences, and challenges associated with digital transformation at the local level (Budhwar et al., 2023).

The selection of interview participants is conducted through purposive sampling to ensure representation across different socioeconomic backgrounds and geographic settings. This sampling strategy is essential for capturing diverse perspectives and understanding how digital transformation affects communities unevenly due to disparities in access to technology and digital literacy (Kunhibava et al., 2023).

All interviews are transcribed verbatim and analyzed using thematic analysis to identify recurring themes and patterns related to digital governance outcomes. Key analytical themes include public trust in digital systems, institutional readiness, and the role of citizen participation in shaping successful digital transformation initiatives (Allioui & Mourdi, 2023).

To enhance the reliability and validity of the findings, data triangulation is employed by comparing quantitative results, qualitative insights, and relevant theoretical perspectives from existing literature. This triangulation process helps to minimize researcher bias and strengthens the credibility of the study's conclusions (Dempere et al., 2023).

Ethical considerations are integral to the research design, particularly given the sensitive nature of governance data and digital systems. Informed consent is obtained from all interview participants, and measures are implemented to ensure confidentiality and responsible data management throughout the research process (Saeed & Omlin, 2023).

The ethical framework guiding this study is grounded in principles of accountability, legality, and respect for individual rights within public administration research. Such principles are essential for maintaining trust between researchers, public institutions, and citizens in studies involving digital governance (Fokin, 2025).

An iterative research process is adopted to accommodate the rapidly evolving nature of digital technologies and governance practices. Continuous reflection and methodological adaptation allow the study to remain responsive to emerging issues and contextual dynamics within local governance environments (Gkrimpizi et al., 2023).

This adaptive methodological approach supports a flexible yet rigorous examination of digital transformation, enabling the integration of new insights as technological and institutional conditions change. Iterative research designs are particularly valuable for studying digitally induced change in public sector organizations (Haug et al., 2023).

Overall, the methodological framework facilitates a comprehensive analysis of how digital transformation reshapes both the operational and normative dimensions of local governance. By synthesizing quantitative and qualitative evidence, the study aims to generate policy-relevant insights that support more effective, inclusive, and accountable digital governance practices (Mora et al., 2023).

The findings of this research are expected to contribute to broader debates on digital governance by offering empirically grounded insights that are transferable to other local government contexts facing similar digital transformation challenges. Such contributions are relevant for advancing comparative research and informing future governance reforms (Dwivedi et al., 2023).

Table 3. Digital Transformation Performance of Local Governments

Country	Municipalities	Study	Source
Italy	Higher indebtedness associated with lower digitalization levels	The role of institutional and operational factors in the digitalization of large local governments: insights from Italy	Emerald Insight
United Kingdom	undefined	State of Digital Local Government	Local Government Association
China	undefined	Mechanisms Influencing the Digital Transformation Performance of Local	MDPI

		Governments: Evidence from China	
Portugal	undefined	Global governments boost productivity and service by embracing digital transformation	Deloitte Insights
United States	undefined	Digital Transformation for Local Governments: How-To Guide	ImageAPI

RESULTS AND ANALYSIS

The analysis of digital transformation initiatives in local governance reveals a combination of measurable efficiency gains and persistent structural challenges that shape implementation outcomes. Empirical findings indicate that local governments adopting digital management systems generally experience improvements in operational efficiency and service responsiveness, particularly in handling citizen requests and administrative workflows (Portet XG et al.).

Evidence from multiple jurisdictions shows that data-driven decision-making contributes to faster response times and more accountable governance practices, signaling a shift away from rigid bureaucratic procedures toward adaptive digital management. In parallel, the use of digital platforms for public engagement has strengthened citizen participation by lowering barriers to access information and enabling more direct interaction with local authorities (Budhwar P et al.).

However, the results also demonstrate that the benefits of digital transformation are unevenly distributed. The persistence of the digital divide remains a critical constraint, particularly in communities with limited internet infrastructure and lower socioeconomic capacity. Areas with weaker digital access tend to experience fewer gains from digital governance initiatives, reinforcing existing inequalities in public service delivery (Kunhibava S et al.).

1. Digital Transformation Performance Indicators

Table 4 presents key quantitative indicators used to assess the level of digital transformation and governance maturity. The Digital Transformation Index (DTI) value of 0.649 indicates a moderate level of digital adoption within local governance structures, while the Digital Citizen Engagement Index (DCEI) value of 0.449 suggests that citizen participation through digital platforms remains relatively limited.

The table further highlights significant disparities in GovTech maturity across income groups. High-income economies account for 58% of advanced GovTech implementation, compared to only 16% in lower-middle-income and low-income economies. Notably, 86% of fragile and conflict-affected states remain in the bottom half of GovTech maturity, underscoring structural constraints that hinder digital progress (Yogesh K. Dwivedi et al.). These findings suggest that economic capacity and institutional stability play a decisive role in determining the success of digital governance initiatives.

Table 4. Impact of Digital Transformation on Local Governance Efficiency

Indicator	Value
Digital Transformation Index (DTI)	0.649
Digital Citizen Engagement Index (DCEI)	0.449
Percentage of GovTech Maturity in High-Income Economies	58%
Percentage of GovTech Maturity in Upper-Middle-Income Economies	26%
Percentage of GovTech Maturity in Lower-Middle-Income Economies	16%
Percentage of GovTech Maturity in Low-Income Economies	16%
Percentage of Fragile and Conflict-Affected States in Bottom Half of GovTech Maturity	86%

2. Digital Access and Social Inequality

The charts included at the end of this section provide further insight into the social dimensions of digital governance. The first visualization illustrates disparities in home broadband access, revealing significant gaps across demographic groups and highlighting increased reliance on smartphones among marginalized populations. This pattern indicates that digital governance systems designed primarily for broadband access risk excluding certain social groups (Allioui H et al.).

The second chart compares high-speed internet availability across rural, urban, and suburban areas, showing that rural regions consistently lag behind. This spatial inequality constrains the effectiveness of digital public services in non-urban contexts and limits the scalability of digital governance models (Dempere J et al.).

The third chart emphasizes workforce disparities within the technology sector, illustrating the underrepresentation of marginalized groups in digital industries. This imbalance has implications for the design and implementation of public digital systems, as limited diversity among developers and decision-makers may reproduce biases in digital governance solutions (Saeed W et al.).

The fourth chart demonstrates the relationship between income levels and smartphone access, indicating that lower-income populations are significantly less likely to own smartphones. This finding reinforces concerns that digital-first governance strategies may unintentionally exclude vulnerable groups unless complementary inclusion policies are adopted (Gkrimpizi T et al.).

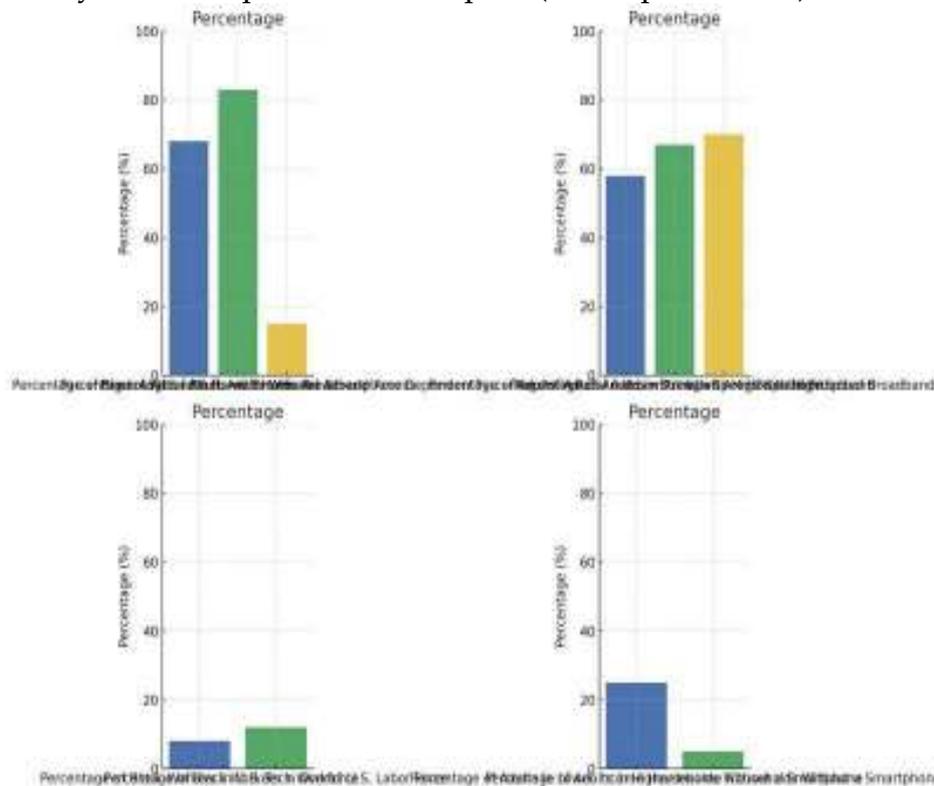


Figure 1. Digital access and representation inequalities across demographic, geographic, occupational, and income groups.

3. Productivity, Risks, and Institutional Capacity

From an organizational perspective, the automation of routine administrative tasks has enabled public officials to reallocate time and resources toward higher-value activities, contributing to improved productivity and cost efficiency. Several local governments reported reductions in paper usage and operational expenses, aligning digital transformation with broader sustainability goals (Yogesh K. Dwivedi et al.).

Despite these gains, the expansion of digital governance has also heightened cybersecurity and data protection risks. Increased exposure to cyber threats poses a significant challenge to maintaining public trust, particularly where institutional capacity for cybersecurity management remains underdeveloped. Without robust

safeguards, digital transformation may undermine rather than enhance governance legitimacy (Dempere J et al.).

4. Implications for Local Governance

Overall, the findings highlight that digital transformation in local governance is not solely a technical process but a multidimensional reform involving institutional capacity, social inclusion, and risk management. The coexistence of efficiency gains and persistent inequalities underscores the need for targeted policy interventions that address access gaps while strengthening digital skills and infrastructure (P. V. Fokin).

To maximize the benefits of digital governance, local governments must adopt an adaptive and inclusive approach that integrates technological innovation with continuous learning, ethical safeguards, and citizen-centered design. Such an approach is essential for building a resilient, transparent, and inclusive governance system capable of responding to future societal challenges (Saeed W et al.).

DISCUSSION

The increasing adoption of digital technologies in local governance has generated significant implications for administrative performance, citizen participation, and accountability mechanisms. The integration of digital systems into governance processes has demonstrated potential to enhance service delivery and responsiveness by enabling data-driven decision-making and real-time administrative monitoring (Portet et al.). However, these benefits are not automatically realized and depend heavily on how digital transformation is designed and implemented within existing institutional structures.

One of the most persistent challenges highlighted in this study is the difficulty local governments face in adapting legacy bureaucratic systems to accommodate new digital technologies. Rigid administrative procedures and outdated infrastructure often limit interoperability and slow down implementation processes, resulting in inefficiencies that undermine the intended gains of digital governance (Budhwar et al.). These structural constraints are further exacerbated by unequal institutional capacities across jurisdictions, particularly between urban and resource-constrained local governments (Kunhibava et al.).

Human capital also plays a critical role in shaping digital transformation outcomes. Limited digital literacy and insufficient technical training among public sector employees significantly hinder the effective use of digital tools, reducing their transformative impact on governance practices (Yogesh Dwivedi et al.). This finding aligns with evidence suggesting that investments in technology alone are insufficient without parallel investments in organizational learning and workforce development

(Allioui et al.). Consequently, fostering a culture of innovation and continuous skill enhancement emerges as a key determinant of successful digital transformation.

Citizen engagement represents another central dimension of the digital governance debate. Digital platforms offer new opportunities for participatory governance by enabling faster communication, feedback mechanisms, and broader public involvement in policymaking processes (Dempere et al.). When effectively implemented, these tools can strengthen transparency and enhance citizens' sense of ownership over local decision-making processes. Nevertheless, digital participation remains uneven, as vulnerable populations with limited access to digital infrastructure or skills risk being excluded from these new forms of engagement (Saeed et al.).

The ethical management of data is equally critical in the digital transformation of local governance. While data analytics can improve policy targeting and resource allocation, inadequate safeguards related to data privacy and security may erode public trust and legitimacy (Mora et al.). Establishing clear governance frameworks for data collection, usage, and protection is therefore essential to balance innovation with accountability and rights protection (Madan et al.).

Experiences from early adopters of digital governance provide valuable insights into best practices for local governments navigating this transition. Empirical evidence indicates that successful digital transformation is often driven by strong leadership commitment and a clear strategic vision that aligns technological initiatives with broader governance objectives (Calvin et al.). Rather than treating digitalization as a standalone project, high-performing local governments embed digital transformation within long-term institutional reform agendas (Luo et al.).

Overall, the findings suggest that the transition from bureaucratic to digital governance is a complex, multidimensional process shaped by technological, organizational, social, and ethical factors. Addressing digital divides, strengthening institutional capacity, and promoting inclusive participation are essential to ensuring that digital transformation contributes to equitable and sustainable governance outcomes (Yogesh Dwivedi et al.). As local governance continues to evolve, policymakers must adopt adaptive and forward-looking strategies that leverage digital innovation while remaining attentive to social inclusion and democratic values (Wang et al.).

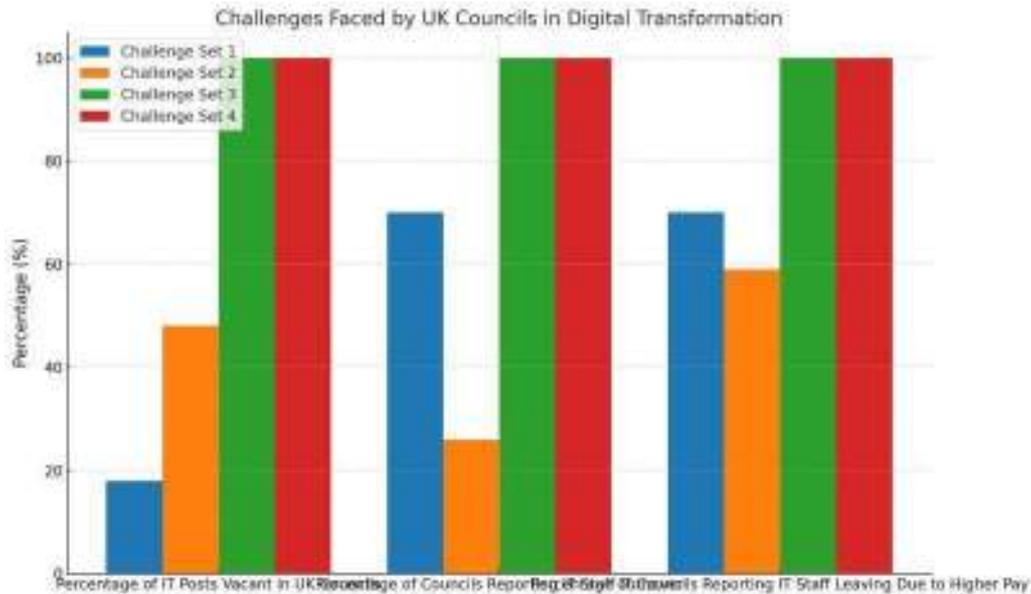


Figure 2. Challenges Faced by UK Councils in Digital Transformation

The structural and human resource challenges associated with digital transformation are further illustrated by empirical evidence from local governments in the United Kingdom, as shown in Figure 2. The figure demonstrates that a substantial proportion of UK councils face persistent shortages in digital and IT personnel, with high vacancy rates and significant staff turnover driven by more competitive remuneration in the private sector. These findings reinforce the argument that digital transformation is not solely a technological challenge but also a workforce and governance capacity issue (Budhwar et al.).

Moreover, the prevalence of digital leadership gaps and resistance to organizational change highlights the institutional barriers that local governments encounter when transitioning from bureaucratic to digitally enabled governance models. Limited managerial readiness and insufficient digital competencies among senior officials constrain the ability of councils to strategically plan and sustain digital initiatives over time (Gkrimpizi et al.). This aligns with broader evidence suggesting that without adaptive leadership and continuous capacity-building, digital transformation efforts risk becoming fragmented and unsustainable (Haug et al.).

The figure also underscores how budgetary constraints and data security concerns compound these challenges. Financial limitations restrict investments in secure digital infrastructure and staff development, while unresolved cybersecurity risks threaten public trust and institutional legitimacy. These constraints emphasize the need for holistic digital governance strategies that integrate human resource development, leadership training, and ethical data management alongside technological innovation (Mora et al.).

Taken together, the evidence suggests that successful digital transformation in local governance depends on addressing systemic workforce shortages, enhancing

institutional capacity, and ensuring long-term investment in both people and technology. Without such integrated approaches, digital initiatives may improve efficiency in the short term but fail to deliver sustainable, inclusive, and trustworthy governance outcomes (Madan et al.).

The broader institutional readiness for digital transformation is further supported by macro-level evidence from OECD countries. Evidence from the OECD Digital Government Index (2023) indicates that all OECD member states have adopted national digital government strategies, demonstrating that digital governance has evolved into a standardized and institutionalized policy priority rather than a discretionary reform agenda. This universal adoption reflects a shared recognition that digital transformation is essential for improving transparency, administrative responsiveness, and citizen-centered public services. Nevertheless, the continued presence of implementation challenges at the local level highlights a persistent gap between strategic commitment and operational capacity, underscoring the importance of strengthening subnational institutional readiness to ensure that national digital visions are effectively translated into local governance outcomes.

CONCLUSIONS

This study demonstrates that digital transformation in local governance offers substantial potential to enhance administrative efficiency, strengthen citizen participation, and improve democratic accountability. The transition from traditional bureaucratic systems toward data-driven and technology-enabled governance has enabled local governments to deliver more responsive, transparent, and citizen-centered public services. Empirical evidence indicates that digital tools facilitate real-time feedback, support evidence-based decision-making, and foster greater public trust by strengthening the relationship between governments and citizens.

However, the findings also highlight that digital transformation is not without significant challenges. Persistent digital divides, unequal access to infrastructure, and concerns related to data security and privacy risk exacerbating existing social inequalities and undermining public trust if not adequately addressed. These challenges disproportionately affect vulnerable populations, emphasizing the importance of inclusive digital governance strategies that ensure equitable access and participation.

The study further underscores the critical role of institutional capacity, human capital development, and ethical governance frameworks in determining the success of digital initiatives. Sustainable digital transformation requires continuous investment in skills development, adaptive organizational cultures, and robust data governance mechanisms to mitigate resistance to change and safeguard public values.

Ultimately, digital governance should be understood not merely as a technological upgrade but as a fundamental transformation in the relationship between local governments and citizens. By integrating technological innovation with inclusivity, ethical accountability, and long-term capacity building, local governments can advance toward more resilient, transparent, and participatory governance systems capable of responding to the demands of an increasingly digital society.

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