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Barriers to Effective Digital Local Governance: A Qualitative Insight on Municipalities in Bangladesh

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ABSTRACT

Digital governance has garnered global attention in recent years and is regarded as an essential catalyst for modernization, efficiency, and citizen engagement in local government. This study aimed to explore the barriers associated with local governance that impede the effectiveness of digital transformation. Phenomenological approach of qualitative research was employed to explore deeper insights into the problems with purposively selected 16 respondents from four municipalities of Bangladesh. The findings indicate that digital infrastructure of local government is not adequate to provide service digitally. The local government revenues are not sufficient to invest in digital equipment, making all departments of the municipality digital. Frequent server downtimes and limited device availability have hampered the service providers' ability to provide services timely. Service providers receive short trainings and are not effective; instead, they should receive longer, more practical trainings. The government should intensify awareness campaigns and yard meetings to involve all stakeholders, as most elderly individuals lack familiarity with digital services. The government's existing policies are insufficient for data privacy, and they require updating to align with digital transformation needs. However, e-participation and citizen engagement are playing pivotal roles for effective digital transformation, helping to reduce

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time, visit, and cost, ensuring transparency, and fostering citizen trust in the local governance service delivery process.

Keywords: Digital Transformation; Local Governance; Municipalities; Digital Service Delivery; Barriers to Digital Transformation; Bangladesh

INTRODUCTION

The digital transformation is the process of integrating digital technology into governmental activities in order to smooth service delivery and enhance efficiency, transparency, and responsiveness by replacing cumbersome paperwork and lengthy approval processes (Shenkoya, 2023). In this contemporary era, digital transformation is profoundly changing public services, governance, citizen experience, and policy formulation with the help of rapid advancement in technology (Larsson and Teigland, 2020). Hence, the introduction of several digital technologies has substantially changed government operations and the way citizens receive public services (Mensah, 2018). Moreover, the digital transformation of government services has resulted in numerous advantages like the cost-effective delivery of services, the integration of multiple services, the reduction of administrative costs, a single integrated view of citizens across all government services, and the speedier delivery of services to meet the demands of citizens (Dwivedi et al., 2017). Therefore, government across the globe is utilizing this transformation not only in large-scale public services but also in local governance to streamline citizen services, ensure affordability, and allow simple personalization and communication for the people (Osborne et al., 2022; Yang et al., 2024).

However, numerous challenges impede the journey to digital transformation, particularly in local-level governance. The integration of digital services may raise concerns about autonomy, independence, and infantilization, potentially leading to impersonalized services for local people (Whittlestone and Clark, 2021). Given that local people primarily rely on human-generated decisions, the ethical implications of algorithmic decision-making replacing professional expertise may also raise concerns (Tariq, 2024). Moreover, local citizens often hesitate to use digitized government services since they are concerned about data privacy and security, particularly the potential for breaches and misuse of personal information. Furthermore, such innovative introductions have the potential to disenfranchise those people who have limited digital skills as well as access to digital technology (Dhonju and Shakya, 2019). As a result, the adoption and implementation of digital technology in local government services has been

a major policy priority for governments all over the world in recent times (David et al., 2023).

In Bangladesh, enhancing public services has been essential for attaining independence and stimulating economic growth; local-level governance has been crucial for such purposes (Uddin et al., 2023). Regarding 'Digital Bangladesh', the government has decentralized administration and governance, transferring authority from the central government to local levels, with a focus on the implementation of digital technologies (Rahman, 2023). In this country, municipalities play a crucial role in policy implementation at the local level, but transforming their services and services for digital renovation is a primary challenge facing the government (Panday, 2007). Moreover, social and cultural factors, including gender, poverty, and education, may impede digitized governance, while the attitudes of change agents can also contribute to discomfort at the local level (Bhuiyan, 2011). On the other hand, the digital divide exacerbates disparities between those with and without access to digital technologies, especially in developing nations where infrastructure and modern technological access are insufficient (James, 2021). Furthermore, different factors contributing to this divide include low literacy rates, high poverty rates, slow technology adoption, a lack of infrastructural development initiatives, and high corruption in the country (Bhuiyan, 2011). Consequently, identifying existing barriers and formulating comprehensive strategies to address them is essential for the better implementation of digitized technologies in local governance (Dhonju and Shakya, 2019).

In the modern era, digital technologies are vital in achieving sustainable development goals, fostering inclusive societies, enhancing institutional effectiveness, and mitigating corruption in developing countries like Bangladesh (Rahman and Parvin, 2024). In addition, the governments in developing states need to achieve Goal 16 of SDG Agenda 2030, highlighting the importance of transparency, participatory decision-making, and the accessibility of information (Janowski, 2016). In Bangladesh, efforts such as Digital Bangladesh and Smart Bangladesh have been implemented to enhance service quality through digital technology, ultimately facilitating an inclusive digital transformation nationwide. Nevertheless, there is a paucity of research regarding the barriers to these initiatives in achieving successful digital governance, particularly in the context of municipal governance (United Nations Economic and Social Commission for Asia and the Pacific, 2024). This study aims to explore the barriers associated with local governance that impede the effectiveness of digital transformation and

propose strategies to overcome them, thereby providing valuable insights for further studies.

THEORETICAL FRAMEWORK

Digital transformation is typically overseen by governments that demand a whole society approach with some inclusive strategies that necessitate to encompass all the stakeholders (Digital Impact Alliance, 2020). Many government strategies are not always coordinated between ministries, which makes it hard for systems to work together and causes unnecessary work to be done twice, which slows down digital transformation and delays the benefits it could bring (Ndulu et al., 2023). Hence, a holistic societal approach requires active participation from all stakeholders, including government, commercial sector, civil society, academia, and the public, to improve local digital ecosystems based on inclusivity, sustainability, accountability, and rights (Mehmood and Imran, 2021).

Figure 1: Digital Transformation Framework (UNDP, 2023)

The UNDP proposes a Digital Transformation Framework that consists of five pillars such as people, connectivity, government, regulation, and economy along with emphasizing collaboration among actors for inclusive digital transformation (UNDP, 2023). This framework, which involves strategy, new ways of thinking, and people's inclusion, ensures universal availability, accessibility, and safe use of technology. It also focuses on maximizing benefits for societally marginalized individuals through thoughtful change processes (UNDP, 2023). Nevertheless, as the journey of digital transformation aims to improve lives and livelihoods through digital technology, the participation of people is mandatory (George, 2024). Moreover, connectivity among the stakeholders is essential, as this can significantly improve outcomes in SDG-related areas, uphold social, economic, and cultural rights, and enhance government efficiency in engaging individuals and delivering services (Misra et al., 2021; UNDP, 2023). Consequently, governmental initiatives need to regulate digital transformation because it poses risks to human rights, such as algorithmic biases, social media misuse, and privacy violations due to excessive data collection and processing (Stovpets et al., 2023).

Variables

Based on the UNDP's digital transformation framework, this study progressed with several independent variables, i.e., digital transformation readiness, service accessibility etc., which were derived from the continuous review of the literature and inquiring textual data collected for the study. Further progression of the data analysis was categorized on the same broad themes as of the independent variables. Independent variables are operationalized in a manner so that they comply with the pillars of the UNDP's framework.

Operational Definition

Table 1: Operational Definitions

	Definition
Digital Transformation Readiness	A state where it is measured if any organization is equipped for digital transformation or governance. It includes digital public infrastructure, tools, internet connection and networks. This operational use of the concept complies with connectivity in a broad sense.
Service Accessibility	Enables citizen's presence in the process irrespective of social and economic class. It also denotes that digital services are available and affordable to the citizens.

Training and Capacity Building	The scope of digital skills development and digital literacy for the functionaries of municipalities and the service receivers.
Service Efficiency	Providing digital services smoothly and faster with utmost transparency. Service efficiency needs government action for better implications.
Policy and Legal Frameworks	A set of documents and actions that will facilitate digital governance for municipalities. Service modalities with proper service guidelines are a matter of concern for ensuring digital governance.
Future Goals and Vision	Aims to make municipal governance function through innovation, automation in financial services and business standardization. It represents a futuristic municipality fortified with digital governance by active citizen engagement.

METHODOLOGY

Approach and Participants

This study applied the phenomenological research approach to design and get deeper insights into research problems. This approach was used to comprehend the problems through individuals' experiences within social reality (Creswell and Creswell, 2013). This study used a purposive sampling technique that facilitates collecting data from a specific group or expert people in a particular field with relevant information and experiences on those issues. The study chose four municipalities from four divisions to get a variety of information to draw a comprehensive conclusion. We chose the respondents following inclusion criteria: citizens of Bangladesh, public employees of municipalities focusing on both males and females, public representatives of the municipality, practicing daily activities and providing services through using e-governance tools, a professional career has been spending more than 2 years in a particular institution, and a demonstrated interest in the study. For measuring the sample size, the researchers followed the KII informant guidelines and continued collecting data until they found similar answers from participants (Padgett, 2008; Polit and Beck, 2010). To fulfil this criterion, the researchers required 12 respondents and collected data from an additional four respondents to avoid missing data, but the data appeared to be identical. A study showed at least six respondents are required to conduct the phenomenological study (Morse, 2000). Table 2 mentioned the detailed demographic information for the respondents.

Table 2: Demographic and Background Characteristics of Respondents

ID	Organization	Division	Professional Status
ID-1	Sreepur Municipality	Dhaka	Mayor
ID-2	Dinajpur Municipality	Rangpur	Mayor
ID-3	Charghat Municipality	Rajshahi	Mayor
ID-4	Trishal Municipality	Mymensingh	Mayor
ID-5	Sreepur Municipality	Dhaka	CEO (Chief Executive Officer)
ID-6	Dinajpur Municipality	Rangpur	CEO (Chief Executive Officer)
ID-7	Charghat Municipality	Rajshahi	CEO (Chief Executive Officer)
ID-8	Trishal Municipality	Mymensingh	CEO (Chief Executive Officer)
ID-9	Sreepur Municipality	Dhaka	Assistant Engineer (Civil)
ID-10	Dinajpur Municipality	Rangpur	Assistant Engineer (Civil)
ID-11	Charghat Municipality	Rajshahi	Assistant Engineer (Civil)
ID-12	Trishal Municipality	Mymensingh	Assistant Engineer (Civil)
ID-13	Sreepur Municipality	Dhaka	Accounting Officer
ID-14	Dinajpur Municipality	Rangpur	Accounting Officer
ID-15	Charghat Municipality	Rajshahi	Accounting Officer
ID-16	Trishal Municipality	Mymensingh	Accounting Officer

Interview Process

A Key Informant Interview (KII) was followed to collect primary data using an open-ended questionnaire. The questionnaire was developed by conducting an extensive literature review and using a different framework designed by developed organizations. The researchers selected respondents with vast experience sharing the actual scenario of local governance digital infrastructures, especially presenting challenges and the best solutions to meet the vision. The researcher developed a team with five members with previous experience conducting KII and provided rigorous training before collecting data. The researchers collected data from their convenient places (offices) and time to ensure they were comfortable sharing information for this study. Data enumerators first discussed the study's purpose and obtained written consent from the respondents. After this, the data enumerators displayed the questionnaire and built a rapport with respondents to get an accurate picture before asking the main question. The data enumerators used the tape recorder and documented it in their hand notes with permission.

Each interview was conducted at the respective offices of the respondents lasting around 30-45 minutes. The data was collected between April 2024 and May 2024.

Data Analysis

After completing the data collection, the researcher transcribed all records verbatim. The researchers repeatedly reviewed the recordings to fully understand the transcripts and capture the research objectives. This study followed the procedure established by Graneheim & Lundman (2004) to delineate themes within qualitative data. This procedure underscored that all transcripts were read multiple times to understand the content and pinpoint significant words and paragraphs through unique coding to explain each context and situation.

Subsequently, the codes were analyzed for similarities and dissimilarities, resulting in the identification of 20 subthemes. Finally, the study identified 15 sub-themes within two broad themes by comprehensive discussion to explain the findings. Furthermore, these sub-themes enhance the researchers' understanding of the respondents' experiences. To ensure the validity and reliability of the research, transcripts were separately coded, and participating individuals were requested to review the transcripts to confirm they accurately reflected their actual experiences. In this approach, only eight respondents were found to read the description after completion of the data analysis.

FINDINGS AND DISCUSSION

The findings of KIIs are organized under some broad themes reflecting the readiness, challenges, and future goals of the digital transformation in local governance of Bangladesh. Under each of these themes, several subthemes were identified based on recurring topics across interviews, and the frequency of each subtheme reflects the prominence given to and emphasis placed on them by the respondents. This is summarized in the table 3 below, outlining themes and subthemes, their significance, and quotes from interviewees.

Table 3: Themes and Sub-themes Generated from KII

Theme	Sub-theme	Frequency	Illustrative Quotes
Digital Transformation Readiness	Budget Constraints	15	Our revenue is very limited after paying salaries, we cannot invest in digital equipment. - KII 5
	Digital Literacy	12	Most people are not familiar with digital services, especially the elderly. - KII 7
	Equipment Availability	18	We lack the digital devices needed in each department. - KII 9
Training and Capacity Building	Need for Frequent Training	20	Training should be extended and more practical. Short trainings are not effective. - KII 15
	Awareness Campaigns	10	Awareness campaigns and yard meetings should be held to engage more stakeholders. - KII 3
Service Efficiency	Faster Service Delivery	7	Digital services will reduce time and make service delivery easier. - KII 10
	Transparency and Accountability	5	Digital systems ensure transparency, which is essential for citizen trust. - KII 11
Challenges in Digital Transformation	Server and Network Issues	14	We face frequent server downtimes, which delays service delivery. - KII 2
	Staff Motivation	9	Service providers lack motivation when salaries are delayed. - KII 8
Policy and Legal Frameworks	Need for Updated Policies	13	Policies exist but need updating to match digital transformation needs. - KII 4
	Data Privacy Concerns	6	There is insufficient legal framework for data privacy. - KII 6

Future Goals and Vision	Goal of Smart Local Government	11	To achieve a smart country, LGIs must be smart and service oriented. - KII 13
	Public Engagement	7	E-participation and citizen engagement are critical for effective digital transformation. - KII 1
Service Accessibility	Service Affordability	8	Charges are minimal, but some still find them hard to afford. - KII 12
	Inclusivity of Disadvantaged Populations	6	Councillors provide door-to-door services for those unable to access digital services. - KII 14

DIGITAL TRANSFORMATION READINESS

Budget Constraints:

Budgetary constraints were one of the primary concerns that LGIs generally face in Bangladesh. Usually, local governments operate on tight budgets, with a large proportion being spent on operations, leaving little scope for enhancing or expanding of technological infrastructure. The scarcity of financial means has spontaneously affected the acquisition of digital equipment and infrastructure necessary for providing updated services. A respondent reminisces on this limitation thus "our revenue is limited after paying salaries; we cannot invest in digital equipment. Most of our funds go to operational costs each month, leaving little for development (KII 5)".

Another noted,

…Even though we are classified as a top-tier LGI, our budget is so restricted that it's hard even to maintain our current digital systems, let alone expand them (KII 12).

Internationally, it is highly noted that LGIs have budgetary constraints for digital transformation. In Uganda, studies have identified that the prevailing budgetary constraints and inefficiencies in the current allocation suppress the full potential for local governments to invest in development projects, such as digital transformations (Overseas Development Institute 2021). Similarly, in India, budgetary restraint simply limits the LGIs to invest in long-term goals for digital development (Cook, 2018). These studies evidence the fact that without such targeted funding-either through grants coming from the central government or

through public-private partnerships-the scope for digital progress in Bangladesh remains very low.

Digital Literacy:

Digital literacy, particularly for elderly citizens, is a major factor acting as a barrier to the effective adoption of digital services. Most of the citizens in LGI lack the basic knowledge required to confidently use online platforms, with the most visible digital divide being among older populations. As one respondent explained:

> Many of our citizens, especially the elderly, find it hard to navigate digital services. They do not trust the systems or do not know how to use them, so they come to the office in person anyway (KII 7).

Another respondent added:

> Younger people are somewhat familiar, but when it comes to those over 50, they struggle with even basic digital tasks, like filling out a form online (KII 9).

This is not unique to Bangladesh; in Kenya, low levels of digital literacy negatively impinged on the uptake of e-services by a large section of the rural population (Kasyoka et al., 2022). In Bangladesh due to a lack of digital literacy, people feel discouraged to seek digital services. However, in many cases where the government provides the service only through digital platforms, many people are bound to avail the services digitally but not by themselves; they seek help from an intermediary, for a fee or free (Shafi, 2023). In contrast, Estonia's inclusive national approach has ensured that 99% of governmental services are online and 70% of citizens use their ID card regularly for digital government services, which saves 2% of its GDP annually (Burzynski, 2022; e-Estonia, 2024; European Economic and Social Committee, 2017). In this regard, Bangladesh might as well adopt some useful lessons by implementing focused digital education programs among the elderly and rural people.

Equipment Availability:

One available digital equipment. Insufficient computers, printers, and internet connectivity result in performance services being delivered at a snail's pace or inefficiently. One respondent pointed out, "We don't even have enough computers to manage our current workload, let alone any spare devices to support new digital services" (KII 2). Another mentioned, "Most departments here don't have functioning printers or scanners; they have to share with others, which delays processing time" (KII 11).

Similar challenges have been reported in Nepal in a study conducted by Dhonju & Shakya 2019 showed that- 52% of respondents strongly agree and 30% agree with mean value of 4.25 on lack of leadership support and ICT skills as the barriers of implementing e-based services in municipalities. Providing adequate digital resources forms the bedrock for ensuring effective governance; in the case of Bangladesh, such investments in digital infrastructure at the level of LGIs may lead to more responsive and accessible service delivery.

SERVICE ACCESSIBILITY

Service Affordability:

Among the major challenges facing LGIs in Bangladesh are issues of availability and access to digital services at affordable prices. While the availability of digital services may imply convenience and efficiency, the issue remains that even minimal charges are a severe burden on poor households. One respondent explained:

The fees for our digital services are minimal, but for some families, even small charge is burdensome. People here often struggle with these fees (KII 8).

Another added:

The charges may seem small, but they add up when you have to access multiple services; for low-income groups, this is challenging (KII 14).

This is corroborated by findings in a study of Latin America that even nominal fees impede low-income residents from using digital services (Hilbert, 2010). An example of addressing this issue may be drawn from Kenya, where they have provided subsidies on mobile phone and digital services, resulting in the number of handset purchases increased more than 200% and tele density increased 20% to reach 70% of the population and have allowed more people to afford everyday connectivity through mobile devices (Alliance for Affordable Internet, 2019). In Bangladesh, this might include options of no cost or income-based subsidies in increasing inclusivity and assuring access to important services.

Inclusivity of Disadvantaged Populations:

The inclusion of disadvantaged populations continues to be a key issue in the successful digital transformation since some community members either lack knowledge or means to use the digital channels. To that effect, LGIs have moved to employ hybrid approaches to service provision in a bid not to leave disadvantaged groups behind. One respondent noted, “To help those who can’t access digital services, our councilors go door-to-door, assisting the elderly and disabled with

accessing necessary services" (KII 13). Another respondent added, "We arrange for in-person support for those who don't have smartphones or internet access" (KII 10).

Globally, Indonesia's rural community models have proved successful, the local government's focus on rural development has reduced inequality by ensuring equal access to essential services, such as education and healthcare, across the population, ensuring inclusivity (Kustanto, 2024). Similarly, Estonia's hybrid model for digital services ensures that those who cannot access such services digitally can be supported through in-person services (Burzynski, 2022). In Bangladesh, such a hybrid system can be crucial in addressing the gap in accessibility and creating equity in the digital transformation process.

TRAINING AND CAPACITY BUILDING

Need for Frequent Training

The employees of LGI need to acquire knowledge and necessary skills to handle the digital systems through frequent practical training. According to the respondents, the existing training sessions are infrequent and not at all practical. One respondent remarked, "Training sessions are often short and very theoretical. When the training is over, we are left struggling to apply the knowledge" (KII 5). Another shared, "We need more hands-on training; a few hours or days isn't enough to prepare us for the demands of digital service provision" (KII 15).

Rana, Dwivedi, & Williams (2015) emphasized that the skills training encourages users to engage positively with the digital channel and creates a new environment by acting on self-efficacy and behavioral control. In Italy, research stated that the local authorities implemented training courses for the intermediaries to make sure they had the required level of expertise (Tangi et al., 2021). Therefore, providing a well-structured training program for LGIs in Bangladesh will help empowering staff, improving the quality of services, and thereby improve the overall citizen satisfaction.

Awareness Campaigns:

The respondents believe that awareness campaigns help develop the public in terms of involvement and understanding of digital services. Community outreach was suggested for sensitization to demystify digital services, and one respondent suggested that "We need yard meetings and seminars to help people understand the benefits of digital services and how to use them" (KII 3). Another added, "If people aren't aware of the benefits or the procedures, they're unlikely to adopt these new systems" (KII 12).

Researchers have identified that awareness regarding digital services has a positive impact on the adoption of e-governance (Hidayat Ur Rehman et al., 2023; Shareef et al., 2011). In Pakistan, the government were suggested to take citizens' awareness into account, launch different campaigns to keep them informed about E-Gov services and motivate them to use these services (Hidayat Ur Rehman et al., 2023). Thus, investments in community-centric awareness programs can play a major catalytic role in Bangladesh for improving digital adoption and thereby creating a more digitally active public.

CHALLENGES IN DIGITAL TRANSFORMATION

Server and Network Issues:

For digital services, stability at the server side and network reliability are of utmost importance. However, this has regularly remained one of the most recurring challenges to most of the respondents in Bangladesh. One respondent described, "Our server is down several times a week, causing us to delay service delivery, sometimes for days" (KII 2), one respondent noted. Another stated, "We need a reliable network, but that's a huge issue in this area" (KII 13).

Even in a developed country like the USA, unstable network infrastructure disrupted public services, participants had limited access to health information and employment and showed negative attitudes toward using technology (Gonzales, 2016). Reliable infrastructure acts as an enabler for consistent service delivery and addressing this concern should be a priority for Bangladesh's LGIs to ensure the credibility and reliability of their digital services.

Staff Motivation:

Motivation of human resources is one of the major factors that contributed to the success of the change. The responses also showed that the absence of incentives reduced staff interest in adopting the new system. As one respondent sates, "How can we be motivated? There is no reward for the extra effort we put into learning these new systems" (KII 8). Another respondent added, "Without any incentives and support, it's difficult to stay motivated to push for digital changes" (KII 14).

In India, urban local bodies have no hard incentive to formulate plans to reduce internal inefficiencies in revenue mobilization and broader resource management which weakened the motivation of public servants and slowed down the process of adopting digital initiatives (Cook, 2018). A timely and competitive salary structure and enough incentives are important for Bangladesh to motivate the staff to develop a commitment towards the digitization agenda.

POLICY AND LEGAL FRAMEWORKS

Need for Updated Policies:

Most respondents felt that the existing policies and regulations supported only a limited number of requirements of digital governance. Thus, they felt that these policies need to be updated. One respondent observed, "Our policies are outdated. They do not account for the realities of digital service provision" (KII 4). Another respondent noted, "Without modern policies, it's hard to make lasting digital changes" (KII 10).

The issue with digital transformation has been that, in many instances, the regulatory framework is always behind the times. This is most evident where regulatory frameworks have not moved abreast with newly devised technologies. The problems are more serious because regulatory barriers pose several challenges in effective implementation in their respective contexts (Postigo, 2023). For Bangladesh, policies should be adaptive and responsive to technological changes to facilitate a sustainable digital transformation regarding data sharing, e-governance protocols, and cybersecurity.

Data Privacy Concerns:

Another major concern, as stated by the respondents, was data privacy, where a lack of protection would lead to losing the confidence of the general public in digital services. One of the respondents claimed, "Our systems are not secure enough to protect citizen data. We need better legal protections" (KII 6), shared one respondent. Another noted, "Without robust data privacy policies, people won't trust digital services" (KII 11).

Studies showed that privacy concerns decrease the tendency of people to disclose personal data online, which drives them away from using digital services. Trust in government surveillance will reduce such concerns, while the fear of government overreach does the opposite (Dinev et al., 2008). A comprehensive legal framework for data protection is necessary to foster public confidence in digital services in Bangladesh, ensuring that citizen information remains secure.

FUTURE GOALS AND VISION

Goal of Smart Local Government:

An interesting aspiration that cropped up in the many responses is to see LGIs emerge as "smart" government institutions providing fast, responsive, and citizen-friendly service delivery. As one respondent noted, "To achieve a smart country, LGIs must be smart and service-oriented" (KII 13). Another added, "Smart LGIs

would allow us to provide services that anticipate and meet the evolving needs of our citizens" (KII 15).

The Smart Nation initiative of Singapore is a mark of this kind of vision, whereby integrated digital platforms have enabled seamless urban services and improved citizens' experiences (Chang and Das, 2020; Hoe, 2016). In the context of Bangladesh, smart LGIs would be achieved through a more adaptive and technology-driven approach aimed at enhancing access and quality of government services.

Public Engagement:

Indeed, public engagement was identified as critically essential for any successful digital transformation because it instils a sense of participation and, therefore, increases the rates of adoption of digital services. One respondent highlighted, "For digital transformation to be effective, we need e-participation and citizen engagement" (KII 1). Another emphasized, "We can't achieve smart governance without involving our citizens in the process" (KII 14).

In this light, the inclusive public engagement in Estonia is an indicative example that has contributed to the high uptake of digital services, whereby citizens have become active in governance through e-platforms (Burzynski, 2022; e-Estonia, 2024). This implies that the way toward a more inclusive and sustainable digital transformation for Bangladesh lies in encouraging e-participation and digital literacy through citizen-centered initiatives.

SERVICE EFFICIENCY

Faster Service Delivery:

One significant benefit of digital transformation is that it speeds up service delivery at all levels, whereby digitization helps streamline processes and reduce waiting times for citizens. These are the outstanding benefits highlighted in the responses, one of which mentioned, "When we digitize processes, it reduces waiting times significantly. People do not have to keep coming back; it is all processed faster" (KII 9). Another added, "Our biggest advantage with digital services is speed; tasks that took days are now completed within hours" (KII 10).

Estonia's case of digital governance epitomizes this argument, where online platforms cut the processing time of public services, hence contributing to an increase in the levels of satisfaction among citizens (Burzynski, 2022; e-Estonia, 2024). In Bangladesh, the adoption of digitized service processes can help reduce congestion in LGI offices and improve citizen satisfaction by saving time for the completion of routine transactions.

Transparency and Accountability:

Increased transparency and accountability are some of the key results expected from the digital transformation perspective within LGIs, given that the digital system contributes to retaining clear records and reducing the scope for corruption. One respondent stated, "With digital systems, there's a clear record of every transaction, which builds trust with the citizens" (KII 11). Another explained, "Digitalization has made it easier for us to be transparent with our processes, which has reduced complaints about delays and corruption" (KII 4).

It has relevance in the research emanating from South Korea, where digital tools provided real-time access to government records, reducing corruption in various sectors e.g., in housing & construction 29.8%, in city planning 9.9%, in construction 17% etc. (Iqbal and Seo, 2008). Greater accountability from digital records builds transparency and thus trust in governmental institutions-a key pre-requisite for the successful functioning of LGIs in Bangladesh.

CONCLUSION

The present study identifies multi-dimensional challenges and opportunities that local governance in Bangladesh is facing for ensuring digital transformation. Some of the key identified barriers to the effective implementation of digital services are constraints from budget allocation, insufficient digital literacy, and a lack of necessary equipment. Notwithstanding this, the findings have shown an ardent desire to see improvement through increased training, capacity building, and public awareness campaigns to foster inclusivity.

The study further identifies that guaranteeing the accessibility of services, especially for disadvantaged people, is important, along with data protection issues and the need for updated policies. Success or failure in digital transformation at the local level goes hand-in-glove with government support, effective legal frameworks, and providing appropriate infrastructure. International experiences in this area, ranging from countries like Estonia to Kenya, illustrate that an integrated inclusive approach, effective increase in citizen engagement, and sound digital infrastructure can be combined to achieve much better results in both digital access and efficiency.

Although this study was limited to just four municipalities and focused solely on quantitative data, both quantitative and qualitative studies with larger samples can provide additional insights into this issue. However, it is evident that Bangladesh needs to give much more attention to enhancing digital literacy,

ensuring public participation, and reforming policies to modern standards in view of developing a smart local government. The pledge for overcoming these identified challenges would provide a way for better, more transparent, and citizen-friendly governance to make digital services truly accessible, trustworthy, and impactful for every citizen.

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