Research Article

Challenges of Infrastructure Development in Information Technology Management: A Study in the Context of Bangladesh

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ABSTRACT

This study explores the multifaceted challenges of infrastructure development in Information and Communication Technology (ICT) management within the context of Bangladesh. As the country aspires to build a robust digital economy, infrastructural shortcomings continue to be a significant impediment to progress. Using a mixed-methods approach that includes surveys and interviews with stakeholders from both public and private sectors, the research identifies key barriers across six thematic areas: inadequate connectivity, unreliable power supply, insufficient data infrastructure, human capital limitations, policy inefficiencies, and institutional fragmentation. Findings indicate that rural areas suffer disproportionately from limited access to broadband and electricity, while urban-centric data centres and the absence of internationally certified facilities compromise performance and security. Moreover, a persistent gap between academic training and industry needs contributes to a lack of skilled professionals, further impeding progress. Policy discontinuities and bureaucratic delays exacerbate the situation, stalling long-term ICT initiatives. The study emphasises the importance of coordinated policy interventions, strategic investment in infrastructure, and reforms in education and governance to promote sustainable ICT development. These insights contribute to a deeper understanding of Bangladesh's digital development landscape and inform policy measures aimed at bridging existing gaps.

Keywords: Information Technology, Infrastructure Development, ICT Management, Bangladesh, Digital Divide, Policy.

JEL Codes: O030, O032, O035, O036

INTRODUCTION

Integrating Information and Communication Technology (ICT) has become a cornerstone of modern economic development, innovation, and governance. As nations worldwide invest heavily in digital infrastructure to boost their competitiveness, countries like Bangladesh also embark on ambitious digital transformation journeys. The government's flagship initiative, "Digital Bangladesh," aims to transform the country into a knowledge-based society by expanding information and communication technology (ICT) across all sectors. However, persistent infrastructure-related challenges hinder the realisation of this vision.

Despite significant advancements in mobile connectivity and the proliferation of digital services, infrastructural limitations continue to be a bottleneck in effective ICT management. Bangladesh's backbone of any digital economy—including broadband networks, data centres, and a reliable power supply—is either underdeveloped or inequitably distributed. These limitations undermine the functionality and scalability of digital platforms, affecting both public and private sector ICT initiatives.

This research examines the primary infrastructural challenges confronting information technology management in Bangladesh. It seeks to answer the following questions:

- What are the significant infrastructural challenges affecting IT management in Bangladesh?
- How do these challenges affect organisational and governmental ICT performance?

This study aims to identify critical infrastructural bottlenecks and evaluate their implications for sustainable ICT development. The findings aim to assist policymakers, IT managers, and development practitioners in understanding and addressing these challenges.

The significance of this study lies in its potential to inform national policy, particularly in light of Bangladesh's aspirations to become a middle-income country through digital empowerment. While several initiatives have been undertaken to promote digital infrastructure, such as the a2i project and the development of hi-tech parks, the implementation of these programs is often hampered by structural inefficiencies and logistical barriers.

The scope of this research encompasses an analysis of urban and rural ICT infrastructure, government policy frameworks, and educational alignment with the IT sector's needs. The study is limited by its reliance on selected qualitative interviews and secondary data, which may not capture all regional variations or rapidly evolving technological conditions.

THEORETICAL FRAMEWORK

The theoretical framework guiding this study integrates two interrelated models: the Technology Acceptance Model (TAM) and the Information and Communication Technology (ICT) Infrastructure Framework. Both offer valuable lenses for understanding the complexities of ICT infrastructure development in Bangladesh.

The Technology Acceptance Model (TAM), developed by Davis (1989), posits that two primary factors—perceived usefulness and ease of use—determine user acceptance of technology. This model has been widely applied in information systems research to understand how individuals and organisations adopt new technologies. In the context of infrastructure development, TAM provides insight into how end-users in Bangladesh perceive and interact with the available technological systems. For example, if rural populations perceive internet services as unreliable or difficult to use, their adoption

and continued use will remain low, regardless of policy initiatives aimed at expanding coverage. Thus, TAM underscores the importance of building technological capacity, user trust, and competency.

However, while TAM helps explain individual and organisational adoption behaviour, it does not fully capture the structural and systemic barriers that constrain the deployment of technology. To address this limitation, this study also draws on the ICT Infrastructure Framework developed by Broadbent and Weill (1997), which conceptualises ICT infrastructure as a set of shared technological services—including hardware, software, connectivity, data management systems, and governance structures—that support enterprise-wide applications. This framework is particularly relevant to Bangladesh, where infrastructural deficits span multiple components, including power supply, broadband access, data storage, and institutional coordination.

The ICT Infrastructure Framework emphasises that effective ICT management depends on technological availability, organisational capacity, human capital, and regulatory coherence. For instance, the lack of coordination between the Bangladesh Telecommunication Regulatory Commission (BTRC) and other government agencies has often led to overlapping mandates and delayed infrastructure rollout (World Bank, 2021). Moreover, the framework emphasises the importance of scalability and adaptability—two key dimensions that are particularly crucial in a rapidly evolving technological environment.

TAM and the ICT Infrastructure Framework comprehensively understand the challenges of ICT development. While TAM focuses on end-user acceptance and interaction, the ICT Infrastructure Framework addresses the macro-level institutional and technological foundations required to support a digital ecosystem. This dual-theoretical approach enables the study to examine how infrastructural deficiencies impact both the supply and demand sides of ICT management.

The integration of these frameworks also allows for a critical examination of the urban-rural digital divide, which remains a significant barrier to equitable ICT development in Bangladesh. TAM helps identify user-level constraints in rural areas, such as low digital literacy and distrust in e-services. In contrast, the ICT Infrastructure Framework explains how inadequate connectivity and unreliable electricity in these regions create systemic barriers to adoption (Hasan & Rahman, 2020; BTRC, 2023).

Finally, these models collectively support the study's aim to generate actionable insights for policy and practice. By linking user behaviour with infrastructural capacity, the theoretical framework provides a structured basis for evaluating existing challenges and designing integrated interventions that align technological expansion with user readiness and institutional support.

LITERATURE REVIEW

ICT infrastructure development is often considered a prerequisite for economic modernisation and governance efficiency. In the context of developing countries, however, infrastructural deficits pose significant challenges to the management and integration of information technology systems (Heeks, 2010).

Globally, the development of ICT infrastructure has encountered common hurdles in developing countries. For example, Kumar and Best (2006) examined ICT projects in rural India and reported that infrastructural bottlenecks such as limited broadband access and power outages significantly hindered technology deployment. Mutula (2005) found that low bandwidth, high costs, and electricity

shortages were key obstacles to digital growth in sub-Saharan Africa. Similarly, Tongia and Subrahmanian (2006) emphasised that infrastructure remains the backbone of ICT access, and its absence critically undermines socioeconomic development.

Other scholars, such as James (2004) and Hanna (2011), have noted that despite adequate infrastructure, poor maintenance and a lack of institutional capacity to manage these systems can reduce their effectiveness. These global case studies demonstrate that technical solutions alone are insufficient; political commitment, regulatory support, and skilled human resources are equally essential for effective implementation.

Bangladesh has taken several measures to enhance its information and communication technology (ICT) infrastructure. Initiatives such as the Access to Information (a2i) project, the development of high-tech parks, and digital literacy campaigns have marked important milestones (UNDP, 2020). Despite these efforts, gaps persist. According to Hasan and Rahman (2020), broadband penetration remains heavily skewed toward urban centres, leaving rural populations underserved. The Bangladesh Telecommunication Regulatory Commission (BTRC, 2023) confirms that over 40% of rural households still lack access to a reliable internet connection.

Power supply is another critical bottleneck. The Power Division's 2022 report indicates that load shedding is more frequent in rural and peri-urban areas, negatively impacting ICT-based operations such as telemedicine, e-governance, and online education. Without stable electricity, the ICT infrastructure cannot operate at optimal capacity.
Moreover, the country's progress in establishing modern data centres remains uneven. The Ministry of ICT's annual report (2022) highlights the concentration of data infrastructure in major cities like Dhaka and Chattogram. This limits cloud service

access and secure data storage for businesses in peripheral regions. Furthermore, existing data centres often lack international certifications such as Tier III or Tier IV compliance, raising concerns about reliability and security (Rahman & Sultana, 2021).

A critical element of ICT infrastructure is human capital. Ahmed (2022) argues that a significant portion of ICT graduates in Bangladesh lack industry-ready skills, particularly in areas like artificial intelligence, cybersecurity, and data analytics. The Bangladesh Association of Software and Information Services (BASIS) also notes a shortage of experienced professionals, which hinders the development and maintenance of ICT systems.

From a policy standpoint, bureaucratic inefficiencies and overlapping institutional mandates are significant challenges. The World Bank (2021) identifies weak inter-agency coordination and delays in project approval processes as recurrent issues in ICT infrastructure projects. Islam and Habib (2019) echo this, noting that policy fragmentation dilutes the impact of otherwise well-conceived digital initiatives. Moreover, the frequent transfer of key government officials and the lack of continuity in leadership have negatively affected long-term ICT project implementation. A study by Mahmud and Akter (2020) revealed that inconsistent leadership and short project timelines often result in underutilised digital platforms and wasted resources.

While various studies have explored individual elements of ICT development in Bangladesh, such as e-governance, education, or telecommunications, there is a noticeable absence of holistic analyses focusing on infrastructure-related constraints specific to IT management. This gap is particularly significant given the centrality of infrastructure in enabling broader digital transformation goals. This study aims to fill that gap by comprehensively analysing

infrastructural challenges in ICT management in the public and private sectors.

This literature review synthesises global and local perspectives to underscore the complex interplay between technological, policy, and human capital dimensions in shaping ICT infrastructure outcomes. Addressing these multidimensional challenges is essential for realising Digital Bangladesh's full potential.

METHODOLOGY

This study employs a qualitative research methodology to investigate the challenges of infrastructure development in Bangladesh's information and communication technology (ICT) sector. Qualitative methods are particularly appropriate when the objective is to gain an in-depth understanding of complex social and institutional phenomena, such as policy limitations, human capital gaps, and technology adoption issues (Creswell & Poth, 2018). By relying on subjective experiences, institutional narratives, and expert opinions, this approach provides rich and nuanced insights into the infrastructural issues affecting ICT development.

Research Design

The study followed an exploratory qualitative design, which allowed the researchers to investigate the underlying causes and perceptions associated with infrastructure development challenges. The design involved collecting and analysing data from semi-structured interviews with key stakeholders across various sectors. These included government policymakers, ICT professionals, infrastructure engineers, academic experts, and representatives from NGOs and private tech firms. The diversity of perspectives enhanced data triangulation, improving the credibility and reliability of the findings (Merriam & Tisdell, 2016).

Sampling Strategy

A purposive sampling was employed to select participants with direct knowledge or experience in Bangladesh's ICT infrastructure planning, implementation, or management. The sample consisted of 20 participants from public agencies (such as the Ministry of ICT and BTRC), private telecommunications and data service providers, university faculty in ICT departments, and non-profit development organisations involved in digital inclusion projects. The selection aimed to ensure broad sectoral representation and contextual diversity.

Data Collection

Primary data were gathered through semi-structured interviews, conducted either in person or via digital platforms (e.g., Zoom and Google Meet), depending on participant availability. The interviews were guided by a flexible interview protocol that covered six thematic areas: connectivity and access, power and energy reliability, data infrastructure, human capital development, policy environment, and institutional capacity. Each interview lasted between 45 and 60 minutes and was audio-recorded with participant consent. The flexible format allowed respondents to elaborate on issues relevant to their roles and experiences, facilitating the emergence of unanticipated themes (Patton, 2015).

Data Analysis

Data analysis followed the principles outlined by Braun and Clarke (2006) in their thematic analysis approach. Interview transcripts were first read repeatedly for familiarisation and then coded inductively using NVivo software. Codes were grouped into categories based on recurrent ideas and themes. These categories were further refined into five overarching themes: digital divide, infrastructural unreliability, regional disparity, governance issues, and human resource constraints. The analysis emphasised the frequency of codes and the depth and

context of responses, capturing both commonalities and divergences in stakeholder perspectives.

Ethical Considerations

Ethical protocols were strictly followed to ensure participant confidentiality and voluntary participation. All interviewees provided informed consent prior to data collection. Personal identifiers were removed during transcription, and pseudonyms were used in reporting to protect anonymity. The study was reviewed and approved by the Institutional Review Board of the affiliated university.

Limitations

As a qualitative study, the findings are not intended to be statistically generalisable but rather analytically rich. The limited sample size and purposive nature of participant selection may restrict broader application; however, the depth of insights obtained offers valuable implications for policymakers and ICT stakeholders in Bangladesh.

RESULTS

The findings of this qualitative investigation into ICT infrastructure development in Bangladesh reveal a multidimensional framework of challenges that intersect across technological, institutional, and socio-economic lines. Data collected from 20 in-depth interviews with stakeholders in government, academia, the private sector, and non-profit organisations illuminate five critical areas of concern: connectivity and access, energy reliability, data infrastructure, human capital development, and institutional barriers.

Connectivity and Access

Stakeholders across urban and rural settings emphasised that unequal access to high-speed internet remains a substantial barrier to effective ICT implementation. Most respondents, particularly those affiliated with NGOs and regional public

agencies, cited limited broadband penetration in rural and coastal districts as a recurring problem. Interviewees noted that urban centres like Dhaka and Chattogram benefit from fibre-optic backbones and 4G coverage, but many rural upazilas remain underserved.

One policy analyst from the Ministry of ICT stated, "Internet access has become a social determinant, but we are struggling to ensure uniform distribution due to infrastructural and logistical constraints." This sentiment echoes the findings of Hasan and Rahman (2020), who described Bangladesh's digital divide as one rooted in geographic and economic inequalities. Respondents also expressed concerns about affordability, reporting that high data costs discouraged consistent usage among low-income users.

Power and Energy Reliability

The unreliability of electricity infrastructure, particularly in rural and peri-urban areas, was reported to be a significant challenge to the functionality of the ICT system. Multiple interviewees referenced frequent load shedding and power surges that disrupt essential digital services, such as online banking, telemedicine, and virtual classrooms.

A senior engineer from a national telecommunications firm mentioned that backup generators and UPS systems are often required even in mid-sized towns: "Many of our clients install backup systems because grid power is unpredictable, and our data operations suffer without them." These testimonies corroborate the findings of the Power Division (2022), which noted that rural electrification has improved on paper but continues to suffer from low voltage and intermittent supply in practice.

Data Infrastructure

The centralisation of data centres in major cities emerged as another recurring concern. Over 60% of ICT professionals reported that regional institutions lack access to secure, scalable data storage, which hinders cloud adoption and digital archiving. Several participants criticised the country's inadequacy of existing data centre standards.

One academic expert from a public university in Rajshahi emphasised, "Even where data centres exist, they often lack proper cooling, security, or failover mechanisms, and are not Tier III or IV certified." This observation supports Rahman and Sultana (2021), who argued that the technical integrity of many data centres in Bangladesh does not meet global benchmarks. Interviewees also highlighted the lack of local data replication strategies and inadequate disaster recovery planning.

Human Capital Limitations

The gap in industry-relevant skills among ICT graduates was a central theme across all sectors. Many respondents criticised current academic curricula as overly theoretical and disconnected from real-world applications. Employers frequently noted a shortage of professionals trained in emerging areas such as artificial intelligence, cybersecurity, cloud computing, and DevOps.

An HR manager from a leading ICT firm explained, "Our junior recruits often need an extra year of in-house training before they are truly productive, which slows innovation and project delivery." These concerns mirror Ahmed's (2022) analysis of the skill mismatch in the ICT sector. Furthermore, participants reported difficulty retaining experienced personnel, citing emigration to international markets as a contributing factor.

Policy and Institutional Barriers

Qualitative data also uncovered a set of governance-related challenges, including weak policy coordination, bureaucratic delays, and inconsistencies in project implementation. Participants from government agencies acknowledged that ICT policies often change with administrative leadership, leading to fragmented and short-lived initiatives.

One high-ranking official noted, "There is little continuity. A new administration often scraps or rebrands ongoing projects, even those with significant sunk costs." These issues are consistent with the findings of Mahmud and Akter (2020), who identified leadership discontinuity as a systemic risk to digital governance. Interviewees also noted overlapping responsibilities among regulatory bodies, resulting in confusion and inefficiency.

Summary of Key Findings

This study's qualitative results provide a comprehensive picture of the infrastructural impediments to ICT management in Bangladesh. The most salient challenges include:

- Inadequate and uneven broadband infrastructure across geographic regions.
- Unreliable electricity supply that undermines the sustainability of ICT systems.
- Insufficiently equipped and poorly distributed data centres.
- Skill gaps and retention issues in the ICT labour force.
- Policy discontinuity and bureaucratic inefficiency at the institutional level.

These challenges demonstrate the need for an integrated, multi-stakeholder approach to ICT infrastructure development. By addressing these systemic weaknesses, Bangladesh can better position

itself to achieve its long-term digitalisation goals and foster inclusive technological growth.

DISCUSSION

The findings of this study present a detailed exploration of the challenges that inhibit the advancement of ICT infrastructure in Bangladesh. By synthesising qualitative insights from stakeholders across government, academia, industry, and non-profits, this discussion links empirical results to broader theoretical, institutional, and socio-economic frameworks. The issues of connectivity, energy reliability, data management, human capital, and institutional efficacy reflect deeper structural limitations that hinder effective ICT integration in national development agendas.

Intersecting Dimensions of the Digital Divide

The unequal distribution of connectivity and access between urban and rural regions emerges as a primary bottleneck. While Dhaka and other metropolitan areas have benefited from the deployment of fibre-optic networks and commercial 4G services, rural areas remain digitally marginalised. This reinforces the classical understanding of the digital divide as more than a technological problem—it is a socio-economic one (Norris, 2001). Hasan and Rahman (2020) emphasise that this divide stems from both infrastructural deficits and affordability concerns, and the present study confirms these findings through the voices of regional NGOs and public officials. The limited reach of ICT infrastructure, coupled with high data costs, restricts access to vital services such as e-health, online education, and digital governance in low-income and geographically remote communities.

6.2 Energy Reliability as a Foundational Prerequisite

A less frequently discussed, yet crucial barrier is the inconsistent energy supply, particularly in rural and semi-urban areas. The functionality of digital platforms—from mobile banking to virtual learning—intensely relies on stable electricity. Power Division (2022) noted that grid reliability remains suboptimal in peripheral regions, and this study's participants highlighted frequent power outages and poor voltage regulation. These deficiencies have a cascading effect on ICT adoption: businesses invest in costly backup systems, institutions experience service interruptions, and public trust in digital infrastructure diminishes. In line with Riaz and Rashid (2019), energy reliability must be recognised not as an adjunct but as an essential component of digital development.

Data Infrastructure and the Regional Gap

Another significant theme is the centralisation of data infrastructure in major urban hubs, which limits digital capabilities in peripheral regions. The lack of secure, Tier III or IV-certified data centres in districts outside Dhaka poses risks to data sovereignty, accessibility, and disaster recovery. Rahman and Sultana (2021) identify the technical inadequacies of current data centres, a point corroborated by this study's participants. Additionally, the absence of local replication strategies hinders scalability and resilience in data-driven public services. This challenge suggests a need to reimagine data infrastructure as decentralised and adaptive to regional needs, echoing the principles outlined in cloud-native architectures (Zhang et al., 2018).

Human Capital: The Skill-Readiness Gap

Perhaps the most complex challenge this study highlights is the human capital deficit. Despite a growing number of ICT graduates, the mismatch between academic training and industry needs remains stark. Employers repeatedly expressed frustration with graduates lacking practical, project-based experience in emerging technologies such as cybersecurity, AI, and DevOps. Ahmed (2022) identifies this skill gap as a structural issue within the educational system, where syllabi are outdated and pedagogies remain lecture-driven. This study also

uncovered concerns around brain drain, with experienced professionals often migrating to more lucrative foreign markets. This suggests a dual challenge: not only must educational institutions reform curricula, but employers and policymakers must also develop incentives for talent retention.

Policy Inconsistencies and Institutional Fragmentation

Policy and governance-related challenges form the fifth and arguably most intractable area of concern. Respondents identified a lack of coordination among regulatory bodies, frequent policy shifts resulting from political changes, and implementation delays as recurring issues. These institutional shortcomings resonate with the governance framework proposed by Heeks (2002), who argued that policy discontinuity and leadership volatility are among the chief barriers to ICT integration in developing countries. Mahmud and Akter (2020) echo this concern in their study on leadership discontinuity, a pattern reaffirmed by the testimony of government officials in this research. These issues delay project delivery, erode stakeholder confidence, and hinder long-term strategic planning.

Comparative Insights and Global Context

Bangladesh is not unique in facing these multifaceted challenges. Other developing countries in South Asia and Sub-Saharan Africa confront similar infrastructural and governance constraints. However, some countries have made progress through the implementation of integrated national strategies. For example, Rwanda has successfully implemented a national broadband plan with a decentralised data strategy and strong public-private partnerships (World Bank, 2021). Through its Digital India initiative, India has made significant strides in digitising public services by investing in connectivity and human capital (Mukherjee, 2020). These examples offer potential models for Bangladesh to consider as it refines its ICT strategy.

Implications for Policy and Practice

The discussion thus far highlights the need for a coordinated, multi-sectoral approach to addressing infrastructure challenges in ICT management. Policy reforms should prioritise:

- Equity-focused broadband expansion targeting rural and marginalised regions.
- Reliable energy access integrated into digital infrastructure planning.
- Decentralised data ecosystems to ensure inclusivity and disaster resilience.
- Curriculum modernisation and industry-academia linkages to align skills with market demands.
- Policy continuity mechanisms such as digital governance frameworks that transcend political transitions.
- Moreover, public-private partnerships and donor agency collaboration should be strengthened to ensure resource mobilisation and implementation efficiency.

Limitations and Future Directions

While this study provides a robust qualitative understanding of infrastructural challenges, its scope is limited to stakeholder perceptions within selected regions and sectors. Quantitative analyses could complement these findings by evaluating performance metrics across regions or institutions. Furthermore, future research could explore the gendered dimensions of ICT access, the environmental sustainability of digital infrastructure, and the effectiveness of specific pilot interventions.

CONCLUSION AND RECOMMENDATIONS

This study explored the critical challenges of infrastructure development in the context of information technology (IT) management in Bangladesh. Despite commendable progress under the

"Digital Bangladesh" initiative, several structural impediments undermine the realisation of a fully functional digital ecosystem. Key findings highlight five core challenges: limited broadband access, unreliable electricity supply, inadequate data centre infrastructure, skills mismatches in the ICT workforce, and bureaucratic inefficiencies.

These interconnected challenges reflect technical and logistical shortcomings, as well as deeper institutional and policy constraints. The rural-urban digital divide remains a stark reality, limiting equitable access to digital services and exacerbating socio-economic disparities. Similarly, energy instability directly impacts the reliability of ICT systems, while the lack of secure data hosting facilities poses risks to digital governance and service delivery. The persistent gap between academic training and industry requirements underscores the urgent need for educational reform, and bureaucratic inertia continues to hinder the implementation of critical infrastructure projects.

Addressing these challenges requires a holistic and multi-stakeholder approach. It is imperative to align technological initiatives with the Sustainable Development Goals, ensuring that infrastructure growth translates into inclusive, secure, and resilient digital ecosystems. This study contributes to the policy discourse by identifying actionable gaps and offering insights for targeted intervention in Bangladesh's IT infrastructure development.

Recommendations

Based on the findings and analysis, the following recommendations are proposed to enhance IT infrastructure development and management in Bangladesh:

Expand Fixed Broadband Infrastructure:

- Invest in fibre-optic networks through public-private partnerships, particularly targeting rural and underserved regions.
- Offer subsidies and regulatory incentives to internet service providers (ISPs) to promote equitable broadband access.

Improve Electricity Reliability for ICT Systems:

- Incorporate renewable energy sources, such as solar power, into the national ICT infrastructure framework, particularly in rural areas.
- Upgrade and decentralise local grids to ensure a continuous power supply to ICT hubs and data centres.

Develop Scalable and Secure Data Centres:

- Encourage private sector investment in regional data centres through tax incentives and low-interest financing.
- Ensure regulatory frameworks support data sovereignty, cybersecurity, and privacy standards in public and private hosting environments.

Bridge the Skills Gap through Education Reform:

- Revise ICT curricula in universities and technical institutions to include practical training in software engineering, cybersecurity, data analytics, and emerging technologies, such as AI.
- Promote collaboration between academia and industry to facilitate internships, mentorship programs, and research partnerships.

Enhance Institutional Efficiency and Coordination:

- Establish a central ICT infrastructure authority to oversee, monitor, and streamline inter-agency coordination and collaboration.

- Implement digital governance tools and key performance indicators (KPIs) to improve transparency and accountability in project execution.

Strengthen Policy Implementation and Monitoring:
- Regularly update national ICT policies to reflect emerging challenges and technological advancements.
- Allocate dedicated budgets for infrastructure monitoring and impact evaluation.

By implementing these recommendations, Bangladesh can create a more robust, inclusive, and sustainable ICT infrastructure landscape. Strategic policy alignment and stakeholder collaboration will be essential to transform infrastructural ambitions into tangible developmental outcomes, thereby accelerating progress toward the vision of a truly "Digital Bangladesh."

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