

E-Governance and Anti-Corruption in Ghana: Contingency, Complexity and the Institutional Accountability Gap

*Michael Fynn Hammond¹, Godfred Eshun Afful², Christian K. Awute³

¹School of Postgraduate Studies, University of Mines and Technology, Tarkwa, Ghana

²School of Railways and Infrastructure Development, University of Mines and Technology, Essikado, Ghana

³Internal Audit Unit, University of Mines and Technology, Tarkwa, Ghana

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ABSTRACT

This study examines the role of e-governance initiatives in combating corruption within Ghana's public sector. Employing a qualitative research approach, the investigation utilised in-depth interviews. The participants comprised public sector workers and service users who continuously use or implement e-governance systems in Ghana. The thematic analysis focused on assessing the current status of these initiatives, exploring their relationship to prevailing levels of corruption, identifying factors influencing their effectiveness and proposing strategic enhancements. Findings confirm that while e-governance systems have successfully enhanced transparency and reduced instances of petty bureaucratic corruption, their overall impact is complex and constrained by significant adoption barriers, notably low digital literacy and weak technological infrastructure. Crucially, the gains achieved through transparency are often undermined by an institutional accountability gap as evidenced by a pervasive lack of follow-up on reported corrupt activities and failure to enforce penalties. This research contributes to digital governance discourse by offering context-specific insights for policymakers on integrating technological advancements with mandatory institutional reforms to ensure the enduring effectiveness of anti-corruption strategies in Ghana and other developing countries.

Keywords: e-governance, corruption, accountability, transparency

INTRODUCTION

The transformative potential of information technology (IT) has compelled governments worldwide to integrate digital tools into operational processes to enhance service delivery and governmental efficiency (Ibrahim, 2025; Ashaye & Irani, 2019). The urgency of this transformation is heightened by the persistent threat of corruption, which remains a major hurdle to economic growth and equitable development, particularly in emerging nations such as Ghana (O'Higgins, 2017). Its adverse effects are systemic, contributing to increased budget inefficiency, growth volatility, altered public service delivery, and imposing high costs on global investors estimated at a roughly 20% increase in operating costs in highly corrupt nations (Ibrahim, 2025). According to Reed and Fontana (2011), large-scale corruption in developing countries is intimately linked to illicit financial flows. The volumes of these flows are larger from resource-rich economies such as Ghana and may represent a higher level of corruption, along with other sources such as revenues from illegal resource exploitation and tax evasion. Many countries have fragile state structures where some market players can exploit the weaknesses associated with state-building processes. The international community, therefore, recognises corruption as a major obstacle to achieving the Sustainable Development Goals (SDGs).

In response to this global challenge, e-governance has emerged as a promising anti-corruption measure, often perceived as being more successful than conventional strategies (Arayankalam et al., 2021). The introduction of such digital government frameworks signifies a major change in public administration to improve the accessibility, efficiency, and transparency of government operations. E-governance represents a key facilitator

of these necessary transformations, allowing public bodies to reform interactions with stakeholders, including citizens, businesses and other government agencies (Ashaye & Irani, 2019). Theoretically, e-governance reduces corruption in two primary ways: first, by providing a forum for information regarding official acts, thereby increasing transparency and public accountability (Castro & Lopes, 2023); and second, by implementing oversight and management tools that systematically lower the opportunity for dishonest behaviour among government employees (Srivastava et al., 2021). The application of ICT tools to public services has therefore been championed as an affordable way to reduce undue governmental interference, oversee public officials' conduct, and establish centralised, comprehensive online gateways for services (O'Higgins, 2017).

Despite the theoretical advantages, the implementation of e-governance as an anti-corruption strategy has produced mixed results globally. While some research suggests a decline in corruption accompanying increased digital implementation (Paul & Adams, 2024), other studies point to significant limitations, noting that common corruption indices may fail to capture actual on-the-ground changes (Ibrahim, 2025). Furthermore, there is a risk that e-government could introduce new opportunities for corruption, particularly by officials lacking ICT literacy (Munshi & Manni, 2025) or by centralising power into digital systems. The complexity of this relationship is underscored by contextual failures, such as Indonesia, a country that ranks highly in government technology spending yet consistently scores poorly on corruption rankings (Arayankalam et al., 2021). Such evidence strongly suggests that merely investing in technology is insufficient; existing e-government systems often fail to adequately address the complexities of corruption prevention and detection (Kogueda & Manga Engama, 2026).

The effectiveness of ICT in fighting corruption is clearly dependent on several nuanced institutional and societal factors that require thorough investigation and evaluation (Hyun & Oh, 2025). The primary research gap addressed by this study is the urgent need to move beyond aggregate corruption indices and conduct context-specific, qualitative assessments of e-government's process-level impact in developing nations, specifically Ghana (Zook et al., 2026). Ghana has seen mixed results on corruption indices in recent years. In the 2024 Corruption Perceptions Index, Ghana's score declined to 42 out of 100, placing the country 80th among 180 nations, down from a score of 43 (70th) in 2023. This reflects a worsening perception of public sector corruption despite several years of anti-corruption reforms and e-governance initiatives. Although Ghana has progressively developed its digital governance capacity, as evidenced by its placement in the United Nations E-Government Development Index (with a score of approximately 0.63 and a global rank near 108 out of 193 countries), which signals moderate levels of online service provision, ICT infrastructure, and e-participation, the divergence between these indices suggests that gains in e-governance readiness have not yet fully materialised into appreciable improvements in perceptions of transparency and accountability. This juxtaposition highlights that while e-governance platforms can strengthen service delivery and procedural efficiency, their potential to reduce corruption may be constrained by continuing institutional and accountability challenges within Ghana's public sector.

Therefore, given Ghana's unique trends in e-governance implementation, corruption patterns, and relevant cultural factors, a critical view of both the potential benefits and limitations of e-technology is necessary to formulate context-specific and comprehensive anti-corruption strategies. The purpose of this study is, therefore, to assess the effectiveness of e-government in reducing corruption in Ghana, addressing four specific research objectives: to assess the current status of e-government initiatives; to examine the relationship between implementation and corruption levels; to identify factors influencing effectiveness; and to propose strategic improvements.

LITERATURE REVIEW

Concept of E-Governance

E-governance involves leveraging digital platforms, information technology, and AI-driven tools to facilitate public administration, enhance the efficiency of public service delivery and citizen engagement, and promote transparency (Balaji, 2025). The United Nations (UN) E-Governance Maturity Model provides a structured approach to e-governance adoption. It consists of four progressive stages:

1. **Emerging Stage** – This is the initial phase of e-governance development, where government institutions establish a basic online presence. Websites primarily provide static information such as organisational profiles, contact details, policy documents and announcements. Communication is largely one-way, with limited interaction between government and citizens.
2. **Enhanced Stage** – At this stage, government portals become more interactive and user-oriented. Citizens can access downloadable forms, submit enquiries, provide feedback and communicate with public institutions through email or online platforms. Information is updated regularly, and the emphasis shifts from mere information dissemination to improving accessibility and public engagement.
3. **Transactional Stage** – In this phase, governments provide secure online services that enable citizens and businesses to complete transactions electronically. Services such as online tax filing, business registration, permit applications, electronic payments, and, in some contexts, e-voting become available. This stage significantly improves efficiency, reduces administrative costs, and enhances service delivery.
4. **Connected Stage** – The highest level of maturity involves the integration of government systems across ministries, departments and agencies. Data sharing and interoperability enable seamless service delivery. In contrast, advanced technologies such as artificial intelligence (AI), big data analytics, cloud computing and digital identity systems support evidence-based decision-making and personalized services. The focus shifts toward citizen-centric governance, transparency, collaboration and smart government ecosystems.

Overall, the UN E-Governance Maturity Model emphasises that digital transformation is not merely about adopting technology but about progressively improving governance processes, enhancing service delivery, promoting transparency and strengthening citizen participation in public administration. According to Sharmin and Chowdhury (2025), this widely adopted framework provides a roadmap for countries and enables them to transition from basic electronic administration to advanced, AI-integrated governance and policy systems. In the global landscape of digital transformation, Estonia serves as a quintessential benchmark for e-governance excellence. By digitizing nearly all public touchpoints, such as taxation, education, and healthcare, the 'e-Estonia' platform has effectively eliminated administrative opacity and streamlined the citizen-state interface. Similarly, Singapore's 'Smart Nation' initiative provides a compelling model of how integrated digital technology can foster a culture of institutional accountability. These international precedents demonstrate that comprehensive digitalisation is a primary driver in enhancing the transparency of public service delivery.

E-governance in Ghana is characterised by a robust framework of strategic policies and initiatives aimed at digitising public administration and fostering greater civic engagement. Ghana adopted e-governance through the ICT4AD in 2003, subsequently followed by the e-governance strategy in 2005 (Oduro and Agbevade, 2026). Following other developments in the e-governance space, the introduction of the National Digital Transformation Strategy in 2021 marked a pivotal shift toward a technologically-driven governance model in Ghana. This policy mandate is specifically designed to modernise government agency operations by fostering a seamless e-service ecosystem and strengthening digital infrastructure, thereby enhancing both operational efficiency and administrative connectivity (Ghana Government, 2021). While the country has made significant strides in digital transformation, the landscape is marred by several systemic inhibitors. Chief among these is the rural-urban digital divide, which restricts equitable access to services for those lacking reliable connectivity and ICT literacy (Kuuyelleh, Akanpaadgi & Korley, 2025). Furthermore, a prevalent deficit in cybersecurity and data privacy frameworks has fostered public scepticism, deterring citizens from engaging with digital platforms due to fears over data mishandling (Amoako et al., 2026).

Corruption

Although the definition of corruption has been studied for a long time, its meaning varies but is ultimately related. The most commonly used definition of the concept is "misuse of public position for private advantage" (Rustiarini, 2019). The problem with this definition is that it excludes the private sector and only pertains to the public sector, even though corruption is also rife in the private sector. Other definitions of private sector corruption emphasise either the corrupter (private sector) or the corrupted (public sector). The main element is the collusion between public officials and the private sector, which may lead to many illegal and illicit practices.

A classic example is the systematic bid-rigging that occurs within public procurement processes as a means of securing government contracts. Additionally, some scholars have divided corruption into two sections to provide a more in-depth explanation. Dlamini and Snyman (2026) classified corruption as political corruption and administrative or bureaucratic corruption. Whereas political corruption happens at the highest levels, administrative corruption manifests at the implementation level.

Respective governments have made concerted progress against public corruption. However, as the 2024 election rhetoric, public perceptions, and compelling evidence of social normalisation of corrupt acts make clear, much remains to be done (Watkins, 2025). Corruption, therefore, continues to pose a significant burden to Ghana's developmental goals, prompting the state's anti-corruption efforts, including the adoption of e-governance frameworks. A growing body of scholarship suggests that digital portals significantly enhance the efficiency and reach of public services while concurrently serving as a strategic tool to dismantle corrupt practices within the Ghanaian state (Oduro & Agbevede, 2026).

Theoretical Review

To analyse the mechanisms through which e-government interacts with corruption, the study employs an integrated analytical framework based on two foundational models: the Principal-Agent-Client (PAC) Model and the Technology Acceptance Model (TAM).

The Principal-Agent-Client (PAC) Model: Explaining Corruption Opportunity

The PAC framework provides a strong lens for viewing corruption as a problem rooted in information asymmetry and the misuse of power (Carr, 2025). In this model, elected officials (principals) delegate authority to public administrators (agents), who serve the citizens (clients). Corruption emerges when agents exploit their informational advantage and discretionary power for personal gain. The PAC model identifies three necessary factors for corruption to flourish: discretionary power (legislative, administrative, regulatory), the economic benefits tied to this power and the low likelihood of corruption detection and punishment (Goel and Nelson, 2025). E-government is designed to disrupt these three factors simultaneously. E-transaction mechanisms standardise service delivery, clarifying rules, streamlining processes, and thereby significantly reducing the agent's discretionary power (Fonn, 2026). This process leads to the "disappearance of the middle-man" by eliminating points of unnecessary human interaction, which were historically sources of bribery and rent-seeking. E-information and e-participation mechanisms counter asymmetric information, enhancing oversight and increasing the probability of detection.

Technology Acceptance Model (TAM): Explaining Adoption Contingency

While the PAC model explains how e-government can reduce corruption, the Technology Acceptance Model (TAM) developed by Davis in 1985 explains whether those benefits will be realised. TAM posits that user adoption and utilisation of new technology are primarily determined by two individual beliefs: Perceived Usefulness (PU), the degree to which a person believes using the technology will improve their performance or quality of life; and Perceived Ease of Use (PEU), the degree to which using the technology is perceived as being free of effort (ElKheshin and Saleeb, 2020). In the context of anti-corruption, TAM functions as a crucial prerequisite for PAC effectiveness. The anti-corruption benefits derived from PAC (such as reduced discretion and increased oversight) are realised only if the target population (both government employees and citizens) adopts and consistently uses the digital system. If technological barriers such as poor infrastructure, low digital literacy, or system complexity result in low PEU, or if security concerns and institutional distrust result in low PU, system utilisation will be low. Low adoption means the majority of transactions will continue via traditional, opaque, human-dependent channels, allowing the PAC corruption mechanisms to remain intact and fail to engage the system's full anti-corruption potential.

Integrated Analytical Framework: Contingency and Constraints

Building upon the integration of the Technology Acceptance Model (TAM) and the Principal-Agent-Client (PAC) model, the narrative for this integrated analytical framework can be extended to highlight how these

factors create or close the institutional accountability gap in Ghana. The study's analytical framework suggests that while e-government is a powerful catalyst for reform, its success is not guaranteed by deployment alone; it is a necessary but not sufficient condition for the pervasive reduction of corruption. The framework identifies two potential points where the anti-corruption mechanism can fail:

- i. Adoption Failure (TAM): At the front end of the governance process, the Technology Acceptance Model (TAM) suggests that the transition from traditional to digital channels depends heavily on Perceived Usefulness (PU) and Perceived Ease of Use (PEU). If systems are not widely used due to technical or user barriers, corruption opportunities persist in traditional channels.
- ii. Institutional Failure (Post-PAC): If detected corruption is not prosecuted due to weak accountability or enforcement, the integrity gains achieved through transparency are negated. This failure not only sustains the risk of corruption but also undermines public confidence in the system, creating a negative feedback loop that diminishes the system's Perceived Usefulness (a TAM failure).

MATERIALS AND METHODS

This study adopted a qualitative research approach coupled with a phenomenological research design. This selection was strategic, providing the most effective means to capture the in-depth insights, lived experiences, and subjective viewpoints of individuals directly involved in or affected by Ghana's digital governance landscape. A phenomenological design is adept at uncovering the complexities and nuances of e-government's impact that extend beyond surface-level observations (Al-Ababneh, 2020).

The research population comprised public sector workers and service users who utilise e-government services in Ghana. For data collection, a non-probability convenience sampling technique was employed to select ten key informants with the authority and experience necessary to evaluate the empirical data. The sample included six males and four females, drawn from pivotal public sector organisations involved in service delivery and revenue generation such as the Ghana Revenue Authority (GRA), National Health Insurance Scheme (NHIS), Ghana Immigration Service (GIS), Ghana Education Service (GES), Ghana Police Service (GPS), Social Security and National Insurance Trust (SSNIT), Driver & Vehicle Licensing Authority (DVLA) and the Ghana Health Service (GHS). This sample size was deemed sufficient for a qualitative study focused on achieving depth and richness of data, rather than on statistical representation.

Primary data was collected using an open-ended interview guide, allowing for flexible yet focused discussions on the intersection of digital governance and corruption. The guide ensured focus and consistency while allowing flexibility for participants to share detailed perspectives on e-government status, its relationship with corruption, influencing factors, and necessary improvements. Interviews were conducted face-to-face and via phone, audio-recorded with consent, and transcribed verbatim to preserve accuracy. Data processing and analysis utilised thematic analysis, which involved iteratively reading, coding, and categorising the transcripts into broader themes that aligned with the study's objectives. This approach was essential for ensuring a comprehensive understanding grounded in the authentic voices and experiences of the participants. Ethical considerations, including informed consent, confidentiality, and anonymity, were strictly adhered to throughout the research process.

RESULTS AND DISCUSSIONS

The thematic analysis of the interview data synthesised findings across the study's objectives, revealing distinct patterns regarding e-government's current progress, its complex relationship with corruption, and the critical factors limiting its success

Current Status and Progress of E-Government in Ghana

The findings of the study indicate that the implementation of e-governance initiatives in Ghana is incremental, uneven, and institutionally differentiated, reflecting broader structural constraints typical of developing economies. While there is clear evidence of progress in the digitisation of public administration, the level of

implementation varies significantly across institutions, corroborating earlier observations that e-government maturity is often fragmented and non-linear (Feleke & Lessa, 2024).

Across the institutions studied, there is an apparent transition from manual, paper-based systems to digitised and semi-automated administrative processes, primarily aimed at improving internal efficiency. Respondents consistently emphasised the role of digital systems in streamlining operations, reducing bureaucratic delays and enhancing record management. As one participant from the Ghana Immigration Service noted, *“This system streamlines processes, improves handling of public requests and maintains records more effectively.”*

This reflects the early stages of e-governance evolution, where reforms are largely driven by internal administrative rationalisation rather than full citizen-centric transformation (Balaji, 2025). The digitisation of records and workflows has reduced inefficiencies associated with traditional bureaucratic systems, thereby improving overall organisational performance.

Beyond internal efficiency, the findings reveal the expansion of citizen-facing digital platforms, particularly online portals that facilitate access to public services such as the [“www.ghana.gov”](http://www.ghana.gov) website. These platforms represent a shift toward more accessible and user-oriented governance structures. A respondent observed, *“We have an online portal where citizens can access services like permit applications, tax filing and public complaints. The uptake has been gradual but positive.”*

This aligns with existing literature emphasising the role of e-government in reducing transaction costs and enhancing service delivery (Balaji, 2025; Demirhan, 2023). However, the “gradual uptake” noted by respondents underscores the persistent challenge of user adoption, which remains a critical constraint in realising the full potential of digital governance systems.

The integration of mobile technologies further demonstrates adaptive innovation in the Ghanaian context. Given the relatively high penetration of mobile devices, several institutions have adopted mobile applications to enhance citizen engagement. As one participant explained, *“There is a mobile app that provides workers, pensioners and employers with access to social security services”*. This finding is consistent with research highlighting the importance of mobile platforms in extending e-government's reach in developing countries (Abdul-Salam, Adam & Preko, 2026). Mobile-based systems enhance accessibility, facilitate real-time communication, and broaden participation, particularly among populations with limited access to fixed internet infrastructure. Another significant development is the emergence of inter-agency integration systems, which enable data sharing and coordination across government departments. Respondents indicated that such systems improve service delivery by reducing duplication and enhancing efficiency. One participant noted, *“We have an integrated system linking several departments, which allows for faster processing and sharing of information.”*

This reflects movement toward a “whole-of-government” approach, which is widely regarded as a hallmark of advanced e-government systems (United Nations, 2020). However, the extent of integration remains limited, with many institutions still operating without such collaboration. Despite these advancements, the findings clearly indicate that e-government implementation in Ghana remains partial and transitional. Some institutions are still at early stages of adoption, often operating hybrid systems that combine digital and manual processes. As one respondent acknowledged, *“We are just beginning with an online platform for public works requests, and there is still a lot of potential to be explored.”*

Overall, the findings suggest that Ghana's e-government landscape is in a transitional phase, characterised by meaningful progress but constrained by structural, institutional and behavioural factors.

Impact of E-Government on Corruption Reduction

The findings reveal that the impact of e-government on corruption reduction in Ghana is significant but conditional, supporting the broader literature that cautions against viewing digital technologies as standalone anti-corruption solutions (Andersen, 2009).

A central mechanism through which e-government reduces corruption is the minimisation of face-to-face interactions between citizens and public officials. Traditionally, such interactions have been key sites for bribery and informal payments. By digitising service delivery processes, e-government systems reduce opportunities for such practices. As one respondent explained, *"The system reduces the need for physical contact, and that alone has helped reduce opportunities for unofficial payments."* Another respondent remarked, *"Digitisation of services at DVLA has led to a visible decrease in bribery or 'goro boys' at the service centre"*. These findings are consistent with Bhatnagar (2003) and Shim and Eom (2008), who identified reduced interpersonal interaction as a critical factor in limiting petty corruption.

In addition, e-government enhances transparency and traceability by generating digital records of transactions and decisions. These records create audit trails that can be monitored, thereby increasing accountability. A participant noted that *"Everything is now recorded and can be tracked, so it is harder for people to manipulate the system without being noticed."* This supports the principal-agent framework which posits that reducing information asymmetry constrains opportunistic behaviour. Digital transparency increases the likelihood of detection and acts as a deterrent to corrupt practices.

The findings also highlight the role of e-government in process standardisation, which reduces discretionary power. Automated systems enforce predefined rules and procedures, thereby limiting the ability of officials to manipulate outcomes. As one respondent observed, *"The system ensures that processes are followed as they are programmed, so there is less room for personal influence."* This position aligns with Rose-Ackerman's (1999) argument that corruption thrives in environments characterised by high discretion and low accountability.

However, the findings also underscore important limitations of e-government initiatives. While e-government is effective in reducing petty, transactional corruption, it has limited impact on systemic or high-level corruption. As one participant cautioned, *"It helps at the lower levels, but when it comes to higher-level decisions, the system alone cannot stop corruption."* This distinction is well established in the literature, which suggests that grand corruption requires broader institutional and political reforms (Mungiu-Pippidi, 2015).

Moreover, the effectiveness of e-government is contingent on strong enforcement mechanisms. Transparency alone does not guarantee accountability. One respondent noted, *"Even when issues are detected, if there is no action taken, then the system does not really solve the problem"*. This reflects a critical limitation: without effective prosecution and sanctions, the deterrent effect of transparency is weakened (Heeks & Mathisen, 2012).

The findings also reveal the emergence of new risks associated with the increasing digitalisation of public services, particularly cybersecurity threats, data breaches and the potential manipulation of digital records. While e-government systems enhance efficiency and transparency, they also create new avenues for cyberattacks, unauthorised access, identity theft, and the alteration of sensitive government data if appropriate security measures are not in place. As one respondent observed, *"As we move more services online, the risk of data breaches and manipulation becomes a serious concern."* Another participant similarly remarked, *"Digital systems are only as reliable as the security behind them. If hackers can compromise government databases, public confidence in the entire system will be weakened."* These concerns underscore the need for robust cybersecurity frameworks, regular system audits and continuous monitoring to safeguard the integrity and confidentiality of digital government platforms. Without adequate investment in cybersecurity infrastructure and institutional capacity, the benefits of e-government may be undermined by declining public trust and increased exposure to digital fraud and corruption. This support concerns in the literature that digital systems can introduce new vulnerabilities if not adequately secured (Mensah & Adams, 2020).

Finally, the impact of e-government on corruption is significantly mediated by user trust and digital literacy. Although digital platforms enhance transparency, accountability and efficiency, their effectiveness depends on citizens' willingness and ability to use them. Where users lack confidence in the security, reliability or fairness of e-government systems, or have limited digital skills, they are more likely to continue relying on traditional face-to-face interactions, thereby preserving opportunities for corrupt practices. As one participant observed, *"If people don't trust the system or don't know how to use it, they will still find other ways."* This finding reinforces the Technology Acceptance Model (Davis, 1989), which argues that technology adoption is driven by perceived

usefulness and ease of use. Consequently, increasing public trust, improving digital literacy and expanding access to digital services are essential for maximising the anti-corruption potential of e-government.

Overall, the findings suggest that e-government has a meaningful but partial impact on corruption reduction. Respondents reported that digital systems have been effective in reducing administrative corruption by limiting direct interactions between citizens and public officials, standardising procedures and creating transparent and auditable records. However, they also acknowledged that e-government has limited influence on systemic forms of corruption which are rooted in broader governance and institutional challenges. These findings indicate that while e-government is a valuable tool for improving transparency and reducing opportunities for petty corruption, it cannot independently eliminate entrenched corruption. Its long-term effectiveness therefore depends on complementary governance reforms, including stronger institutions, effective oversight, political commitment and sustained efforts to promote public trust and digital inclusion.

Challenges in E-Government Implementation

The findings indicate that the implementation of e-government in Ghana is constrained by several interrelated challenges with the digital divide emerging as one of the most significant barriers. Respondents observed that limited access to internet services, inadequate digital infrastructure and low levels of digital literacy, particularly in rural communities, continue to hinder citizens' ability to access online government services. As one respondent explained, *"The biggest challenge we've faced is the digital divide. Many citizens, especially in rural areas, lack access to or familiarity with digital platforms."* This finding is consistent with Hilbert (2011), who argues that socio-economic inequalities significantly influence access to and utilisation of e-governance initiatives.

The study further found that technological and institutional challenges continue to impede effective e-government implementation. Participants highlighted difficulties in integrating legacy systems with newer digital platforms, resulting in interoperability and compatibility problems that reduce operational efficiency. One respondent noted, *"One of our main challenges has been integrating legacy systems with new technologies. This often results in compatibility issues."* Concerns regarding cybersecurity and data protection were also frequently mentioned, with one participant stating, *"We struggle with ensuring cybersecurity and protecting sensitive data."* These findings support existing literature, which identifies system interoperability and cybersecurity as critical requirements for successful digital government implementation.

The findings also reveal that financial limitations and resistance to change remain significant obstacles to the successful implementation of e-government. Respondents indicated that the high costs associated with technological infrastructure, system maintenance and staff training often constrain implementation efforts. As one participant remarked, *"The initial investment in technology and training staff has been a significant challenge."* In addition, organisational and citizen resistance to adopting new digital systems continues to slow implementation, as reflected by another respondent who stated, *"Getting both employees and citizens to adapt to new systems is a slow process."* These findings corroborate previous studies, which emphasise that adequate financial resources, capacity building and effective change management are essential for successful e-government implementation (Heeks, 2010).

Factors Influencing Effectiveness of E-Government in Ghana

The findings indicate that the effectiveness of e-government initiatives in Ghana is influenced by several interrelated factors, with technological infrastructure emerging as the most fundamental. Respondents consistently identified reliable internet connectivity, stable digital systems and secure ICT infrastructure as necessities for efficient public service delivery. Despite progress in Ghana's digital transformation, participants noted that infrastructure limitations continue to affect the accessibility and reliability of e-government services, particularly in less-developed areas. This finding is consistent with previous studies that identify ICT infrastructure as a critical determinant of e-government success (Heeks, 2010). Well-designed and effectively implemented interventions facilitate the closure of identified gaps and increase the probability of achieving successful outcomes.

The study further found that institutional commitment and political will significantly influence the sustainability and effectiveness of e-government initiatives. Participants emphasised the need for stronger coordination among government institutions and improved interoperability of digital platforms. One respondent remarked, *“We need a more unified system where everything works together seamlessly.”* This suggests that fragmented systems reduce efficiency and user experience. The finding supports existing literature, which argues that effective e-government depends on strong leadership, policy continuity, adequate resources and institutional collaboration (Gil-García & Pardo, 2005; Cunha & Camões, 2025).

Finally, the findings reveal that citizen engagement and digital literacy are essential for increasing the utilisation and effectiveness of e-government services. Respondents indicated that many citizens require greater digital skills and more user-friendly platforms to benefit from online government services fully. As one participant noted, *“Improving digital literacy and making systems more user-friendly will increase effectiveness.”* This finding aligns with the Technology Acceptance Model (Davis, 1989), which posits that perceived ease of use influences technology adoption, and reinforces evidence that digital literacy and citizen-centred service design are important drivers of successful e-government implementation.

Synthesis of Findings: Toward an Integrated Governance Model

Taken together, the findings demonstrate that e-government in Ghana has contributed to improving transparency, efficiency and service delivery while reducing opportunities for certain forms of corruption. However, its effectiveness remains conditional on broader institutional, technological and socio-behavioural factors. The integration of empirical evidence and existing literature reinforces the conclusion that e-government is a necessary but insufficient instrument in the fight against corruption.

The findings identify several key factors that shape the effectiveness of e-government, which can be conceptualised within an integrated governance model. At the core of this model is the interaction between technology, institutions and users.

First, technological infrastructure provides the foundation for system functionality. Without reliable connectivity and robust platforms, e-government initiatives cannot operate effectively. However, infrastructure alone is insufficient as it must be complemented by institutional commitment and political will. These determine the direction, coherence and sustainability of digital reforms in Ghana.

Second, citizen engagement and digital literacy play a critical role in ensuring that e-government systems in Ghana are utilised effectively. High levels of adoption increase transparency and accountability by expanding the visibility of government actions. Conversely, low adoption limits the reach and impact of digital systems, reinforcing existing inefficiencies.

Third, system integration and interoperability are essential for creating a cohesive digital ecosystem. Fragmented systems not only reduce efficiency but also create loopholes that can be exploited for corrupt practices. A unified architecture enhances coordination, reduces duplication, and strengthens accountability.

Taken together, these factors suggest that the effectiveness of e-government is contingent on the alignment of technical capacity, institutional structures, and user behaviour. This aligns with contemporary perspectives that view e-government as a socio-technical system, rather than a purely technological intervention.

CONCLUSION AND POLICY RECOMMENDATIONS

The central conclusion of this study is that e-government is a necessary but insufficient instrument for reducing corruption in Ghana. While digital technologies have enhanced transparency, improved service delivery, and reduced opportunities for certain forms of corruption, they do not, on their own, address the deeper institutional and political drivers of corrupt behaviour. The study demonstrates that the relationship between e-government and corruption reduction is conditional and mediated by several factors. In particular, the effectiveness of e-government depends on the presence of strong enforcement mechanisms, robust institutional frameworks and

high levels of user adoption. Without these complementary conditions, the benefits of digital transparency may not translate into meaningful accountability.

From a theoretical perspective, the study reinforces the relevance of both the Principal–Agent–Client model and the Technology Acceptance Model, demonstrating that both institutional dynamics and user behaviour influence corruption reduction through e-government. This integrated perspective provides a more nuanced understanding of the role of digital technologies in governance reform. In sum, e-government initiatives in Ghana should be viewed not as a standalone solution but as part of a broader governance transformation agenda, requiring coordinated efforts across technological, institutional and societal domains.

LIMITATION OF THE STUDY

This study is subject to several limitations that should be considered when interpreting its findings. The qualitative phenomenological design was appropriate for exploring stakeholders' experiences and perceptions of e-government implementation. However, it limits the generalisability of the findings beyond the selected participants and institutional contexts. The relatively small, purposively selected sample captured rich, context-specific insights but may not fully represent the diversity of experiences across Ghana's public sector. Although thematic saturation guided data collection and systematic thematic analysis enhanced the credibility of the findings, the study did not employ additional trustworthiness measures such as data triangulation, which could have further strengthened methodological rigour. Furthermore, the study relied primarily on participants' perceptions and experiences rather than objective indicators of e-government performance or corruption reduction, such as administrative data, corruption statistics or service delivery metrics. Consequently, the findings should be interpreted as providing an in-depth understanding of stakeholder perspectives rather than definitive evidence of the causal impact of e-government on corruption reduction in Ghana.

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