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The impact of electronic procurement (E-procurement) on public sector accountability in Ghana

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Abstract
Purpose: This study investigates the antecedents and consequences of e-procurement in Ghana, focusing on its role in enhancing transparency and accountability in public procurement.
Methods: The research sampled 200 respondents from various government agencies in Accra, including the Department of Roads, Ghana Cocoa Board, Ghana Health Service, and Tema Metropolitan Assembly. Data were analyzed using graphs, tables, descriptive statistics, chi-squared tests, and simple regression analysis.
Results: The findings revealed that the effective implementation of e-procurement in Ghana began in 2019, with agencies such as the Department of Feeder Roads, Ghana Cocoa Board, Ghana Health Service, Koforidua Technical University, and Tema Metropolitan Assembly adopting the system. The Ghana e-procurement system (GHANEPS) includes key components such as e-tendering, e-requisition, e-tender evaluation, e-supplier selection, and e-supplier relationship management. The study also found that transparency, accountability, automation, and a secure system were critical success factors in reducing corruption. In addition, a positive association was observed between e-procurement adoption and transparency in public procurement.
Conclusion: The findings underscore the significant role of e-procurement in enhancing transparency and accountability in Ghana's public procurement processes.
Limitations: The study was limited to selected government agencies in Accra, which may restrict the generalizability of the findings to other regions and institutions in Ghana.
Contributions: This research contributes to the literature on public procurement reforms in Ghana, highlighting the effectiveness of e-procurement in enhancing transparency and accountability in public procurement, which has not been examined in previous studies in the Ghanaian context.
Keywords: *e-procurement, consequence, public sector accountability, corruption, Ghana*
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1. Introduction

The procurement function in any organization is pivotal for acquiring and delivering goods and services essential for operational activities and goal attainment (Quashie, 2019). In the public sector, where substantial funds are allocated for procurement (Anane, Adoma, & Awuah, 2019), effective procurement management is crucial. Unlike the private sector, where procurement management can

serve as a source of competitive advantage and cost management (Yevu, Yu, Darko, Nani, & Edwards, 2023), public procurement in developing countries, including Ghana, has been a subject of intense scrutiny due to its association with corruption (Mansaray, Lapkoff, & Little, 2018; Quashie, 2019; Tukamuhabwa, 2012). The allocation of significant public resources to procurement adds to the significance of public procurement in the financial management systems of developing countries, particularly Ghana (Anane et al., 2019).

The prevalence of corruption scandals and inefficiencies in public procurement in Ghana has led to increased attention and the implementation of various reforms aimed at improving transparency, efficiency, and value for money (Anane et al., 2019). Weaknesses in governance institutions, such as internal audit agencies and other anti-corruption agencies, have further exacerbated the problem (Musah, Gapketor, & Anokye, 2018). The introduction of the Public Procurement Act 2003, Act 663, marked a significant reform prescribing competitive tendering processes to enhance competition, transparency, and value for money (Quarshie, 2019). However, despite these efforts, corruption scandals persisted, prompting the Public Procurement Authority (PPA) to explore innovative measures, such as the introduction of e-procurement, to address challenges and enhance transparency (Anane et al., 2019).

Traditional procurement processes in Ghana, characterized by bureaucracy and susceptibility to corruption, necessitated the adoption of e-procurement by the Public Procurement Authority (Anane et al., 2019). While the potential of e-procurement to address these challenges and improve transparency has been researched globally (Brandon-Jones & Kauppi, 2018), limited empirical studies have been conducted in Ghana because of the novelty of the system. Existing studies on public procurement in Ghana have mainly focused on compliance with the Public Procurement Act 2003 and Act 663, with limited attention paid to e-procurement (Ameyaw, Mensah, & Osei-Tutu, 2011; Anane et al., 2019; Godfred, Evans, Doumbia, & Hanson, 2015; Quashie, 2019).

The introduction of e-procurement in Ghana's public sector aims to enhance governance through improved transparency, accountability, and cost reduction in procurement processes (Brandon-Jones and Kauppi, 2018). The motivation behind public procurement reforms, including the adoption of e-procurement, is to eliminate corruption, promote value for money, and improve efficiency (PPA, 2010). However, few empirical studies in Ghana have explored the consequences, both positive and negative, of e-procurement adoption to address the challenges of traditional procurement systems.
This study seeks to address the antecedents of e-procurement adoption in Ghana by focusing on the challenges of the manual system that necessitated the introduction of e-procurement. Additionally, this study examines the consequences of e-procurement, considering both prospects and challenges, to inform policy-making decisions. By investigating the impact of e-procurement on public sector accountability and transparency, this study contributes to the ongoing discourse on enhancing procurement systems in developing countries, particularly Ghana.

This study will make a significant contribution to the literature, policy, and practice. In the literature, the introduction of e-procurement into the public sector procurement system is a relatively new phenomenon, and as such, there are few empirical studies evaluating the system and identifying the challenges to help improve it. Furthermore, few empirical studies have examined e-procurement in the public sector in sub-Saharan Africa, especially its effect on promoting transparency and accountability and reducing corruption in public procurement, which makes this study a very useful contribution to the literature. In the area of policy making, the results of the study will provide useful feedback to the Ghana Public Procurement Authority, the Ministry of Finance, and the Ministry of Procurement to help them adopt more innovative strategies to ensure all government agencies have the ability and capacity to adopt and are actually using it in all public procurement processes. The results also provide useful information to various government agencies who have adopted and those on the process of adopting e-procurement and help them avoid some of the mistakes the early adopters have made in their implementation process.

2. Literature review

2.1 The Concept of Procurement and E-Procurement

The concept of procurement, often synonymous with terms such as purchasing and supply, involves acquiring goods and services for organizational use (Quashie, 2019). However, Quashie (2019) contends that procurement extends beyond mere acquisition, emphasizing its focus on the entire internal and external processes involved in obtaining the goods and services necessary for an organization's effective functioning. In the public sector, effective procurement must align with organizational strategy and government objectives, positioning it as a tool for strategic change and development (Mansaray et al., 2018). The procurement process encompasses the pre-contract, contract, and post-contract stages, and regulatory compliance (Mansaray et al., 2018).

E-procurement, a relatively new concept, involves the application of information communication technology (ICT) in procurement activities (Aqeel & Asim, 2019). The World Bank (2003) defines e-procurement as the use of ICT in procurement and supply chain management relationships between entities and contractors. Baily, Farmer, Crocker, Jessop, and Jones (2008) characterize e-procurement as the adoption of electronic methods in requisition, buying, processing, payment, and the overall management of acquisition transactions by organizations. Its goal is to reduce processing time, enhance transparency and accountability, and minimize human intervention, thereby mitigating the risk of corruption (Bausà Peris et al., 2023; Putri, Syamsu, & Triono, 2024).

Initially practiced in the private sector, e-procurement gained traction owing to its benefits and was later adopted by public-sector organizations (Yevu et al., 2023). Although private sector e-procurement is associated with B2B systems in supply chain management, its objectives are to reduce processing time, improve transparency, and decrease procurement costs (Bausà Peris et al. 2023; Mukhlis, Makhya, Yulianto, & Aviv 2025). The adoption of e-procurement is driven by the global shift from paper-based to electronic systems for faster transactions and improved organizational efficiency (Baily et al., 2008; Mahuwi & Israel, 2024).

Although the adoption of e-procurement in public sector entities varies, the overall aim is to harness ICT to address the challenges faced by traditional procurement systems (Boafo, Ahudey, & Darteh, 2020). Public procurement in developing countries, including Ghana, represents a significant portion of government expenditure, making efficient management crucial (Adebiyi, Ayo, & Adebiyi, 2010). The implementation of e-procurement in the public sector involves the utilization of electronic equipment and systems in accordance with legal frameworks and country laws (Boafo et al., 2020).

2.2 Public Procurement in Ghana

Public procurement in Ghana's public sector has undergone substantial reforms, particularly in response to escalating concerns regarding corruption within procurement processes (Anane et al., 2019). A pivotal reform in this regard was the enactment of the Public Procurement Act, 2003, Act 663, marking a significant step towards streamlining procurement activities across all government ministries, departments, and agencies with the overarching goal of enhancing transparency and accountability (Boafo et al., 2020; Mansaray et al., 2018). Despite the positive impact of the Public Procurement Act on instilling a degree of order and transparency, challenges persist, raising questions about transparency, accountability, and the prevalence of corruption in Ghana's public procurement landscape (Aqeel and Asim 2019).

The Public Procurement Act 2003 and Act 663 outline the structural framework essential for managing public procurement in Ghana, encompassing entities such as procurement entities, tender review committees, district tender review boards, regional and ministerial tender review boards, central review boards, and evaluation panels (Asare & Prempeh, 2017). These structures play a crucial role in ensuring compliance with procurement laws at different levels and ensuring a thorough review of all public procurement processes throughout the country. The selection of procurement methods and

determination of the approval level—whether at district, regional, or national tender review boards—are contingent on the nature and value of the goods and services being procured (Aqeel & Asim, 2019).

Various procurement methods have been identified to streamline the process, with competitive bidding emerging as the recommended method under law (Boafo et al., 2020). Competitive bidding facilitates open competition for the provision of goods and services, and aims to secure the most affordable and high-quality bids for procurement entities. However, alternative methods, such as restrictive tendering, request for quotation, sole-sourcing, and two-stage tendering, are permissible under specific conditions. The default procurement method remains competitive tendering, with other methods subject to stringent conditions (Asare & Prempeh, 2017). Notably, sole sourcing is advocated when goods or services are exclusively available from a specific supplier or contractor, requiring approval from the Public Procurement Authority (PPA, 2010).

Despite legal reforms, corruption concerns persist within public procurement in Ghana, prompting considerations for digital transition (PPA, 2010). Manual procurement practices, prevalent in public sector organizations, were criticized for being cumbersome and bureaucratic, fostering corruption, and enabling the concealment of sole-sourced contracts that did not meet legal requirements (Asare & Prempeh, 2017; Boafo et al., 2020). Research has documented instances of manipulation in procurement processes and tampering with documents during transportation from the district and regional to national levels, leading to delays and a lack of transparency in major procurement activities (Godfred et al., 2015).

In 2009, the government initiated a broader e-government agenda, encouraging major government ministries, departments, and agencies to digitize significant portions of their operations to reduce paperwork, enhance efficiency, and safeguard public records (Anane et al., 2019). By the end of 2010, over 160 government agencies had submitted their procurement plans online to the Public Procurement Authority (PPA), marking the inception of the e-procurement system (PPA, 2010). The system, comprising an online procurement planning system and a communication platform, facilitates the submission of procurement plans at the beginning of the year, promoting transparency and accountability (Godfred et al., 2015). The system ensures restricted access to procurement plans, allowing only the Public Procurement Authority as a regulator to view them. Additionally, the system facilitates the communication of all matters related to public procurement to stakeholders, including approvals and expressions of interest, fostering greater disclosure of pertinent information to contractors, suppliers, and other key stakeholders (PPA, 2010).

2.3 Theoretical Review: Technology Acceptance Theory

The Technology Acceptance Theory (TAM) is a widely recognized framework in the realm of technology adoption and implementation studies, globally acknowledged for its applicability. Originating as an extension of the Theory of Reasoned Action, TAM elucidates the factors influencing users' acceptance and utilization of technology (Doherty, McConnell, & Ellis-Chadwick, 2013). At its core, TAM comprises two pivotal variables that significantly shape users' attitudes towards technology, particularly systems featuring novel attributes (Hidayat, 2015). These variables encompass users' perceptions of technology use and their actual engagement with technology-based systems. TAM delves into the factors influencing attitudes towards technology use and the success of its implementation.

In the context of previous studies on technology adoption, Turner, Kitchenham, Brereton, Charters, and Budgen (2010) assert that resistance among people towards adopting technology or a related system constitutes a major factor influencing its adoption. This attitude further delineates the extent to which a system can achieve success, a principle that is readily applicable to e-procurement (Hidayat, 2015; Setiawan & Wijayati, 2024). When viewed through the lens of Technology Acceptance Theory, the adoption of e-procurement necessitates a focus on the ease with which users can navigate the system—an aspect critical to its overall success (Boafo et al., 2020; Ukwuoma, Cirman, & Oye, 2022). Additionally, the motivation to use technology hinges on perceived benefits and ease of utilization. The successful implementation of technology involves gaining buy-in from major stakeholders during the formative stages, which is a crucial element for system success (Turner et al., 2010). Borrowing from

the Theory of Reasoned Action, TAM employs a logical approach to explaining human behavior concerning technology adoption and use, following the sequence of belief-attitude-intentions-behavior, with a particular emphasis on the ease and usefulness of the technology to the user (Hsiao & Yang, 2011).

It can be contended that e-procurement serves as a conduit through which the primary objectives of supply chain management can be achieved, focusing on ease, convenience, and the benefits it offers, aligning with the logical framework of Technology Acceptance Theory. The utility of the system hinges on users' subjective understanding that the technology will confer benefits without incurring costs, and that it is easy to use (Hsiao & Yang, 2011; Khan & Al Amin, 2021). TAM primarily concerns users' attitudes, particularly their perceptions of the utility of a new technology. This attitude is the determining factor of either resistance or acceptance. Given the motivations behind e-procurement adoption, it can be anticipated that certain stakeholders, especially those with illicit interests in public procurement, may resist its implementation. Conversely, legitimate contractors and suppliers may welcome the system, anticipating improvements in governance, transparency, and accountability (Šumak, Heričko, & Pušnik, 2011). Employees of the Public Procurement Authority, who may have benefited from the opacity of the manual procurement system over the years, stand as potential detractors because the new technology offers no apparent financial incentives and may impact their support for the system. In essence, as e-procurement is essentially the infusion of technology into the public procurement process, Technology Acceptance Theory emerges as the most appropriate framework to comprehend the benefits and challenges inherent in the adoption and implementation of the system within government-affiliated organizations across the country.

On the basis of the application of the Technology Acceptance theory for the study in line with previous studies discussed above, the study presents the conceptual framework below to explain the effect of the adoption and implementation of e-procurement on reducing corruption and promoting transparency.

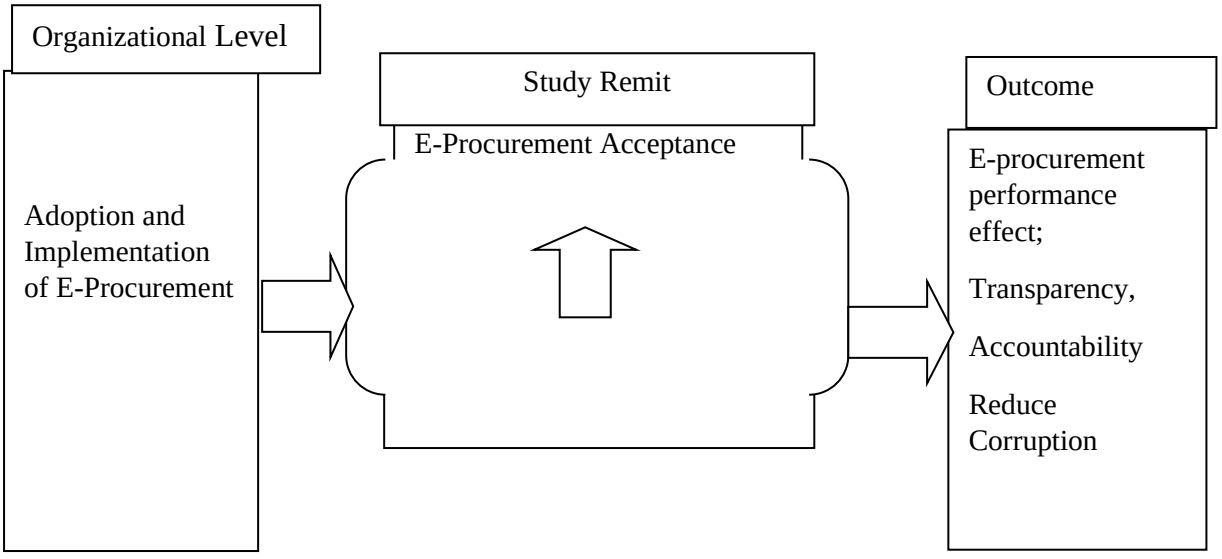

Figure 1. Conceptual Framework on E-procurement adoption and Consequence

The framework suggests that public sector organizations that have adopted and implemented e-procurement will enjoy the consequence of improved transparency and accountability as well as reduce corruption if the system is accepted within the particular procurement entity and the individual firms that are key stakeholders of the procurement process. The acceptance of these stakeholders of e-procurement will be based on some factors or antecedent factors that compel them to accept the system and work with it. Once this happens, the anticipated outcomes will be realized.

3. Research Method

The research methodology employed a mixed-methods approach, integrating both qualitative and quantitative designs to comprehensively address the study's objectives. The rationale behind adopting a mixed research design was to mitigate the limitations inherent in individual qualitative and quantitative designs aligned with the research goals.

The primary aim of this study was to document the antecedents of e-procurement in the public sector, a facet best analyzed through a qualitative lens. Concurrently, the study sought to explore the benefits and prospects of the e-procurement system by employing both qualitative and quantitative approaches to enhance the depth of the findings. Similarly, an investigation of the challenges associated with e-procurement embraced a dual-method approach. The mixed-methods design was deemed most suitable for achieving the diverse objectives of the study.

The study focused on respondents from selected public sector organizations in Accra, which were identified by the Public Procurement Authority (PPA) as having adopted e-procurement. A PPA Bulletin from 2010 indicated that approximately 160 organizations across various sectors, including health, education, ministries, and agencies, had registered nationwide. The selection process employed stratified sampling to ensure representation from major public sector sectors. Procurement officers within these entities and the Public Procurement Authority constituted the target respondents, with an intended sample size of 200.

The purposive sampling technique was used to select respondents within the sampled organizations, ensuring that individuals directly involved in procurement matters within their respective organizations participated in the study. Given that procurement is a specialized function, not all employees engage in it. However, the Procurement Act permits other key officials to be part of the procurement committee, making them crucial participants in the study. Therefore, the purposive sampling technique was deemed most appropriate for this study, involving the selection of respondents based on their roles in the e-procurement process.

Data analysis encompassed various approaches. Closed-ended questions underwent quantitative analysis employing tools such as descriptive statistics, graphs, diagrams, and advanced statistical tools where applicable. The responses were coded into Excel and processed using appropriate software with relevant analytical tools. For qualitative data, a thematic analysis approach was applied, aligning with the key study objectives. Responses were organized into themes through data reduction, following the approach advocated by Miles and Huberman. The organized qualitative data, along with quantitative findings, were linked to the research objectives and previous studies on the subject. The closed-ended question data were coded into Excel, and correlation and regression analyses were performed using SPSS.

4. Results and discussions

Table 1. Respondent’s demographics

Items	Frequency	Percent
Institutions		
Educational Institutions	45	22.5
Health Institutions	68	34
Ministries	30	15
Department and Agencies	44	22
Public Procurement Authority	13	6.5
Gender		
Male	102	51
Female	99	49
Level of Education		

Diploma/HND	36	18
Degree	54	27
Post-Graduate	110	55
Others	0	0
Years of Experience		
Below 5 years	28	14
Between 6 to 10	65	32.5
Between 11 to 15	85	42.5
16 years and above	22	11

Source: Research Data, 2024

The findings presented in Table 1 indicate a nearly equal distribution of genders within the study sample, highlighting a balanced representation that is crucial for diverse opinions and responses. Specifically, 51% of the respondents were male and 49% were female. This outcome aligns with similar research conducted by Luthra, Kumar, Kumar, and Haleem (2011) and Asogwa (2013) in the public sectors of India and Nigeria. These studies reported a higher male presence in analogous investigations of public procurement. Despite women constituting a higher proportion of Ghana's total population, the results underscore the gender imbalance within the public sector workforce. Table 1 further reveals that all respondents possessed tertiary education, indicating their capacity to comprehend and respond meaningfully to the research questions. The majority (55%) hold postgraduate degrees, 18% have a diploma or higher national diploma, and 27% possess a first degree. This educational profile ensured that the sampled participants were well equipped to provide informed responses. The educational distribution closely mirrors the findings of Boafo et al. (2020) in their study on e-procurement at the Cocoa Board, where the majority of respondents held either a first degree or a post-graduate degree. Examining the analysis in Table 1 regarding respondents' years of experience in procurement, it is evident that 42.5% have accumulated between 11 and 15 years of experience, while 11% boast 16 years and above in procurement roles. This implies that more than half of the respondents possessed over a decade of procurement experience, encompassing both manual and e-procurement systems. Additionally, 32.5% had 6 to 10 years of experience, and only 14% had less than 5 years of experience. This overall distribution suggests that the sampled respondents have substantial procurement expertise, which is crucial for providing insightful responses to the research questions. Boafo et al. (2020) support the significance of respondents' years of experience in technical subjects such as procurement, emphasizing its critical role in obtaining accurate study responses.

4.1 E-Procurement Practices In Ghanaian Public Sector

The first objective of this study is to assess current e-procurement practices within the Ghanaian public sector. An analysis of responses from both closed-ended and open-ended questions has revealed that while the conceptualization of e-procurement dates back to 2010, full-fledged implementation commenced in 2019, initially involving five government agencies. The Ghana Electronic Procurement System (GHANEPS) aims to replace traditional face-to-face interactions, fostering enhanced productivity for both service providers and public procurement officers (PPA, 2010). Noteworthy agencies that have already implemented GHANEPS include the Department of Feeder Roads, Ghana Cocoa Board, Ghana Health Service, Koforidua Technical University, and the Tema Metropolitan Assembly. The second phase of implementation began, encompassing 34 government agencies and public universities in Ghana (PPA, 2010).

To comprehensively evaluate the adoption and implementation of GHANEPS in Ghana, respondents were initially asked to rate the presence of specific components inherent to e-procurement. This inquiry sought to elucidate the extent of the system's integration into Ghana's public procurement processes and pinpoint the facets of the procurement process that it endeavors to automate. The selection of areas for automation, as provided in the questionnaire, drew inspiration from the literature detailing key

components of successful e-procurement systems in developed countries like Australia, Korea, and India. These nations are renowned for their highly effective e-procurement systems in the public sector. The results are summarized in Table 2.

Table 2. Applicable E-procurement Components in Ghana

Components of E-procurement	Mean score	Std. Dev
E-tendering	4.854	0.145
E-supplier relationship management	3.785	0.094
E-requisition	4.245	0.065
E-tender evaluation	4.754	0.254
E-supplier selection	4.835	0.056

Source: Research Data, 2024

The study employed a Likert scale ranging from 1 to 5 to gauge respondents' perceptions of the various components of e-procurement. The results are summarized in Table 2. The findings indicate that the new e-procurement system, GHANEPS, incorporates an e-tendering component, scoring an impressive mean of 4.86 out of 5. This suggests widespread agreement among respondents regarding the presence and functionality of an online tendering system within GHANEPS. This outcome aligns with Hidayat (2015), who emphasized the significance of e-tendering as a core element in Indonesia's e-procurement system. Following closely, the second-highest scoring component is e-supplier selection, earning a mean score of 4.84 out of 5. This underscores the perceived effectiveness of GHANEPS in implementing an online system for supplier selection and minimizing human intervention. This result echoes the findings of Brandon-Jones and Kauppi (2018), who emphasize the importance of an e-supplier selection system in comprehensive e-procurement frameworks. The third-highest rated component is e-tender evaluation, achieving a mean score of 4.76 out of 5. Respondents predominantly acknowledged the presence of an online system for tender evaluation within GHANEPS, reflecting a collective belief in the potential for reduced human involvement and enhanced transparency. This finding resonates with the recommendations of Anane et al. (2019), who advocated for a streamlined e-procurement system with minimal human interference in the tender evaluation process. Examining the e-requisition system in GHANEPS, the study revealed a mean score of 4.25 out of 5. This suggests a strong inclination among respondents toward the existence of a system that allows procurement entities to send requisitions to potential suppliers, fostering transparency and accountability through comprehensive audit trails.

Conversely, the e-supplier relationship management component received the lowest score, with a mean of 3.78. The lower rating may be attributed to the collaborative nature of this component, which necessitates cooperation between procurement entities and suppliers. Given the nascent stage of GHANEPS, it is plausible that the development of this particular component is still underway, which explains its comparatively low score. In summary, GHANEPS incorporates key components of an electronic procurement system, presenting a promising avenue for mitigating the challenges associated with manual public procurement systems. The study also examined support systems within various government agencies to facilitate the implementation and seamless operation of GHANEPS, employing statements related to e-procurement components critical for ensuring an effective system, as suggested by the existing literature. The result of the responses to the statement have been summarized in Table 2 below

Table 3. Components of E-Procurement at Government Agencies

Statements	Mean	Std. Dev
The use of computers and ICT Gadgets	4.954	0.067
Auditable spend management data	3.967	0.145
Efficient payment and invoice settlement	3.985	0.106

Has an ICT infrastructure (internet, web portal)	4.895	0.0745
Standardized procurement process and procedures	4.4567	0.085
Centralize control of procurement	4.1543	0.0932
Good organizational culture in terms of willingness to change	3.867	0.0985

Source: Research Data, 2024

The findings in Table 3 underscore that relevant government agencies possess the essential computer gadgets requisite for e-procurement implementation. With a mean score of 4.95 out of a possible 5, procurement officers in various government agencies in Accra evidently believe they have the fundamental equipment to embrace the e-procurement system. Furthermore, the results indicate that these government agencies and institutions have the foundational infrastructure of Internet connectivity and web portals crucial for a robust e-procurement system. With a mean score of 4.9 out of 5, this signifies that Internet connectivity is not a hindrance. This outcome aligns with expectations, considering the sample selection's confinement to Accra, where Internet facilities are universally available in government agencies. This resonates with Tukamuhabwa's (2012) findings, reporting that 93% of respondents in his study affirmed possessing internet facilities and web portals capable of hosting an e-procurement system in their agencies.

Additionally, it concurs with Anane et al. 's(2019) research, where a majority of respondents acknowledged having the necessary Internet facilities and web portals for an efficient e-procurement system. Respondents also indicated their organizations' possession of a standardized public procurement system, garnering a mean score of 4.46 out of 5. This aligns with the results of previous studies by Hidayat (2015) and Boafo et al. (2020), both of which assert that Ghana boasts one of the most standardized public procurement systems globally. However, the extent of the application of this standardization in GHANEPS implementation remains unclear. Moreover, respondents affirmed that government agencies exhibit the right organizational culture conducive to transitioning from a manual system to an automated one. This implies minimal resistance, which is a significant challenge in electronic system implementation. This result parallels Siita's (2014) findings, where all respondents attested to a general willingness to adopt and use an automated procurement system to manage public procurement.

4.2 E-Procurement Success Factors for Anti-Corruption and Promotion of Transparency

The second objective of the study focused on the components of the e-procurement system that will help reduce corruption and promote transparency and accountability in public procurement. The summary of the result is summarized in Figure 2 below

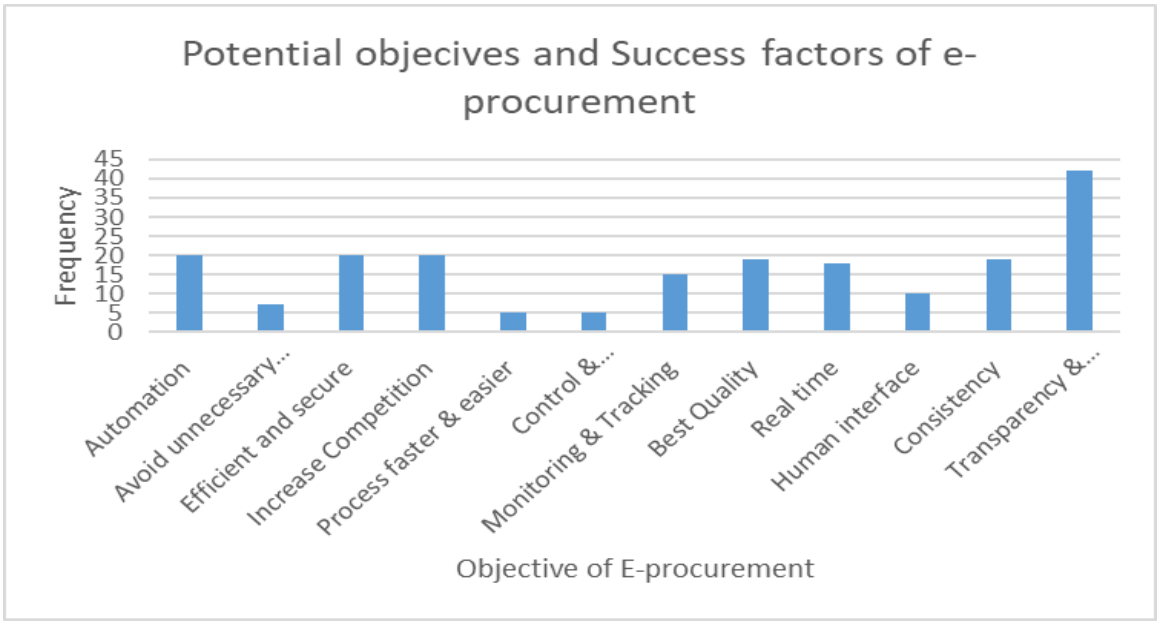

Figure 2. Anti-corruption success factors of e-procurement

The findings depicted in Figure 2 highlight that e-procurement has the potential to mitigate corruption by enhancing transparency and accountability, securing the highest rank of 42. This aligns with Neupane, Soar, Vaidya, and Yong's (2012) assertion that numerous developed countries, such as Australia and Korea, embraced e-procurement as a strategy to combat corruption in the public sector. Similarly, Chomchaiya and Esichaikul's (2016) study in India underscored the success of their e-procurement system in fostering transparency and accountability in public procurement. Given that corruption in public procurement remains a prominent concern in Ghana, it is unsurprising that respondents prioritized promoting transparency and reducing corruption as the primary goals of the e-procurement system. The success of GHANEPS hinges on its ability to uphold transparency and curtail corruption in the procurement process, especially considering the heightened discourse on these issues during recent elections. Figure 2 also reveals that respondents anticipate the new system's capability to automate the procurement process, which is a pivotal success factor in e-procurement systems globally. Automation is regarded as crucial in prior studies, as exemplified by Mahmood's (2010) research in Bangladesh. The process's importance lies in reducing human involvement, which is a significant driver of the challenges in public procurement. GHANEPS's success is contingent on its ability to comprehensively automate the public procurement system, fostering efficiency, transparency, and cost reduction, while aligning with environmentally friendly practices by minimizing paperwork.

Moreover, the survey indicated that respondents viewed increased competition and an efficient, secure system as equally vital, with each receiving a rating of 20. This suggests that the e-procurement system is perceived as a catalyst for heightened competition, ultimately reducing the costs of public procurement. This finding aligns with Adebiyi et al. 's(2010) observations in Nigeria and broader international experiences in countries like India, Norway, Italy, Singapore, and Malaysia, where e-procurement has been instrumental in enhancing competition, efficiency, and cost-effectiveness. In the context of Ghana's public procurement system, competitive bidding is recommended by the Public Procurement Act of 2016 (Act 914 as amended), emphasizing the need to foster competition to enhance efficiency and ensure value for money in procurement contracts. Despite legal recommendations, sole sourcing has historically dominated major government projects, prompting criticism. The e-procurement system is anticipated to rectify these challenges by leveraging its online efficiency to minimize delays associated with the traditional system. Finally, the survey highlights the importance of real-time access to the public procurement process, tracking, and monitoring, indicating high expectations for the new system. Realizing these expectations is pivotal for Ghana to join the ranks of countries that have successfully harnessed the benefits of e-procurement, such as Australia, India, South Korea, and Malaysia.

4.3 The Effect of E-Procurement in Promoting Transparency and Accountability in Public Procurement in Ghana.

The last objective of the study is to examine the effect of the e-procurement system in promoting transparency and accountability and reducing corruption in the public procurement process in Ghana as part of the consequence of the e-procurement system. A summary of the results of the descriptive statistics on the above objective is provided in Table 4.

Table 4. Descriptive Statistics on E-procurement and transparency Accountability and Corruption

	Mean	Std. Dev
E-procurement has/will promote good governance of public procurement	4.864	0.056
E-procurement has/will improve transparency in the management of public procurement	4.9345	0.0745
E-procurement has/will improve the level of accountability in public procurement	4.9467	0.054
E-procurement will/has reduced disagreement in the awards of contract for goods and services by MDAs	4.9154	0.063
E-procurement will/has promoted value for money in the award of contracts	4.2145	0.165
E-procurement has/will promote fairness in the award of contract	4.895	0.0345
E-procurement has/will reduce cronyism and nepotism in public procurement	4.574	0.0854
E-procurement has/will reduce corruption in the award Contracts	4.9567	0.0254
Total Mean score	**4.79385**	

Source: Research Data, 2024

The initial statement evaluated whether respondents concurred that the e-procurement system would enhance good governance in public procurement. The mean score of 4.86 out of 5 indicates that a majority of respondents align with the perspective that e-procurement will contribute to the governance improvement of public procurement in Ghana. This finding echoes the positive correlation identified by Boafo et al. (2020) between e-procurement adoption and the advancement of good governance in public procurement. This is also in line with the articulated objectives of the new system, as outlined in the public bulletin by PPA (2010). The second statement gauged respondents' agreement on the potential of e-procurement to enhance transparency in the management of public procurement. Neupane, Soar, Vaidya, et al. (2012) contended that many e-procurement systems, particularly those in developed and emerging economies, have effectively utilized e-procurement to augment the transparency of their procurement systems and processes. The mean score of 4.93 reflects respondents' belief in the objectives of the new system, aligning with the broader goal of promoting transparency.

The third statement sought respondents' views on the impact of e-procurement on their level of accountability in public procurement. The mean score of 4.95 implies a strong consensus among respondents that e-procurement in Ghana will enhance accountability in public procurement. This finding is consistent with the reported improvements in transparency and accountability in public procurement following e-procurement adoption, as highlighted by Neupane, Soar, and Vaidya (2012). The subsequent statement focused on respondents' perceptions of the role of e-procurement in reducing disagreements regarding awards of contracts for goods and services. The mean score of 4.92 suggests a strong agreement that the online automated procurement system will introduce fairness and transparency into the awarding of contracts and the tendering process, minimizing potential disagreements.

The following statement inquired whether the implementation of the GHANEPS system would enhance the value for money in the award of contracts in public procurement. The mean score of 4.21 indicates widespread agreement that the new system will promote value for money in public procurement for goods and services. This aligns with the findings of Boafo et al. (2020) and the broader cross-country

study by Neupane, Soar, Vaidya, et al. (2012), emphasizing the positive relationship between e-procurement adoption and the achievement of value for money in public contracts. The results in Table 4 also demonstrate that the new system would reduce nepotism in the award of contracts under the public procurement system. Additionally, the GHANEPS was anticipated to diminish corruption, receiving a mean score of 4.96 out of a possible 5. The high score on these statements underscores practitioners' beliefs in public procurement that the GHANEPS system will be instrumental in curbing corruption in Ghana's public procurement process. This aligns with the consistent findings of various studies, including Boafo et al. (2020) and Anane et al. (2019), all suggesting that e-procurement is poised to reduce corruption in public procurement. The overall mean score of 4.79 indicates collective confidence that GHANEPS will enhance transparency, accountability, and reduce corruption in the management of public procurement.

In the final analysis, the study used the chi-squared analysis and regression analysis to establish the relationship between e-procurement and the enhancement of transparency and accountability and the reduction of corruption in public procurement in Ghana. The result of the analysis of the Chi-Squared analysis in presented in Table 4 below

Table 5. Model summary on Transparency & Accountability and Corruption Reduction

Model	-2 Log Likelihood	Chi-square	Sig
Intercept only	60.304		
Final	26.664	33.639	0.040

Source: Research Data, 2024

Predictors: Adoption and implementation of e-procurement and the promotion of transparency and accountability in public procurement p is significant at 0.05

The findings reveal a positive relationship between the adoption and implementation of e-procurement and the reduction of corruption through improved transparency and accountability in public procurement. This outcome aligns with the results obtained by Boafo et al. (2020), who identified a similar positive coefficient between these variables. A positive coefficient signifies that the adoption of e-procurement is associated with a reduction in corruption within public procurement, concurrently fostering transparency and accountability.

To ascertain the significance of the ordered logistic regression analysis, a test was conducted on the model encompassing predictor variables derived through an iterative process, maximizing the log likelihood of the outcomes observed in the outcome variable. The regression model exhibited significance ($\chi2 = 33.639$, $p = 0.040$), as shown in Table 5, indicating that at least one of the regression coefficients in the model differed from zero. Furthermore, the comparison between the "Final" model and the "Intercept Only" model reveals improvement, as evidenced by the differences in the -2(Log Likelihood) values associated with both models.

The Pseudo R-Square analysis, as presented in Table 5, yields a Nagelkerke value of 0.380. This value suggests that 38.0 percent of the variation in the level of transparency and accountability in public procurement, concerning the reduction in corruption, can be elucidated by transparency and accountability principles and dimensions.

In conclusion, since the significance value of the test statistics (p=0.040) obtained is less than 0.05, the null hypothesis:
H_0: The adoption of e-procurement in public procurement has an insignificant impact on the promotion of transparency, and accountability in public procurement is rejected in favor of the alternative hypothesis:
H_1: The adoption of e-procurement significantly impacts on the promotion of transparency and accountability in public procurement

Table 6. Regression Coefficients of e-procurement as Predictor of Transparency and Accountability in public procurement

Variable	B	Std. Error	F	β
(Constant)	10.278	4.983	404.098.828**	
Final	1.075	.053		

R^2= .685, **p<0.01

Source: Research Data, 2024

H2: E-procurement will have a significant positive effect on the promotion of transparency and accountability in public procurement.

The hypothesis was evaluated through simple regression analysis, assessing the extent of variance in e-procurement explained by the promotion of transparency and accountability. As shown in Table 6, a positive relationship exists between e-procurement, transparency, and accountability in public procurement (r= .828, p < .01). The regression coefficients, as presented in Table 4.5, underscore that e-procurement contributes significantly to explaining variations in transparency and accountability (β = .290, p < .01). E-procurement, in this context, explained 8.4% of the variance in transparency and accountability in public procurement (R2 = .084, F (1, 119) = 17.142, p < .01). Consequently, these results substantiate Hypothesis 2, suggesting a significant relationship between e-procurement and transparency and accountability in public procurement. This finding aligns with the outcomes reported by Boafo et al. (2020) and Neupane, Soar, Vaidya, et al. (2012), both of whom identify a positive association between e-procurement and transparency and accountability in public procurement.

5. Conclusion

The study's findings indicate that while the adoption and initiation of the e-procurement system commenced in 2010, its effective implementation took place in 2019, involving notable government agencies such as the Department of Feeder Roads, Ghana Cocoa Board, Ghana Health Service, Koforidua Technical University, and Tema Metropolitan Assembly. The GHANEPS, the primary component of the Ghana e-procurement system, encompasses features such as e-tendering, e-requisition, e-tender evaluation, e-supplier selection, and e-supplier relationship management, the latter of which is yet to be fully implemented. Notably, the study reveals the availability of essential computer equipment, network systems, and Internet connectivity to support the e-procurement system. Moreover, the study identified critical success factors in curbing corruption within the e-procurement system, including transparency and accountability, automation, an efficient and secure system, and real-time access to information, as respondents accorded these variables the highest ratings. This research underscores that the e-procurement system plays a pivotal role in fostering transparency and accountability in the governance of public procurement in Ghana. Both the Chi-squared analysis and simple regression analysis affirm a positive association between the adoption and implementation of e-procurement and the promotion of transparency and accountability in public procurement, offering an additional advantage of reducing corruption through automation, as indicated by survey responses.

In conclusion, this study posits that e-procurement significantly contributes to enhancing transparency and accountability in the management of public procurement, thereby mitigating corruption risks. The following recommendations are proposed as a basis for future research. First, subsequent studies should conduct a comprehensive review of the system's implementation and functionalities, including its application in all procurement transactions within the public sector. Second, expanding the study's scope to encompass government departments and agencies beyond Accra would enable a broader understanding of resource availability, support mechanisms, technical skills, and the overall effectiveness of the e-procurement system nationwide.

References

Adebiyi, A. A., Ayo, C. K., & Adebiyi, M. (2010). Development of electronic government procurement (e-GP) system for Nigeria public sector. *International Journal of Electrical & Computer Sciences IJECS-IJENS*, 10(6), 69-76.

Ameyaw, C., Mensah, S., & Osei-Tutu, E. (2011). *Challenges facing the smooth implementation of Ghana's Public Procurement Law, 2003, Act 663.* Paper presented at the Laryea, S., Lleiringer, R. and Hughes, W.(Eds) Procs West Africa Built Environment Research (WABER) Conference, 19-21 July 2011, Accra Ghana, 237.

Anane, A., Adoma, V., & Awuah, G. (2019). The effect of procurement practices on service delivery: a case study of VRA, Ghana. *Asian Journal of Economics, Business and Accounting,* 13(1), 1-23. doi:https://doi.org/10.9734/AJEBA/2019/v13i130164

Aqeel, A., & Asim, M. (2019). Factors influencing e-procurement practice in Pakistan. *Business Management and Strategy*, 10(2), 1-26.

Asare, E. N., & Prempeh, K. B. (2017). An empirical assessment of factors that influence the implementation of e-procurement in technical universities in Ghana. *Journal of Logistics Management*, 6(2), 52-60. doi:https://doi.org/10.5923/j.logistics.20170602.03

Asogwa, B. E. (2013). Electronic government as a paradigm shift for efficient public services: Opportunities and challenges for Nigerian government. *Library Hi Tech, 31*(1), 141-159.

Baily, P., Farmer, D., Crocker, B., Jessop, D., & Jones, D. (2008). *Procurement principles and management*: Pearson Education.

Bausà Peris, O., Kourtidis, S., Liljemo, K., Loozen, N., Rodrigues Frade, J., & Snaprud, M. (2023). E-procurement golden book of good practice: final report. Retrieved from https://vpt.lrv.lt/uploads/vpt/documents/files/mp/kiti_leidiniai/e-procurement-golden-book-of-good-practice_en.pdf

Boafo, N. D., Ahudey, E., & Darteh, A. O. (2020). Evaluating e-procurement impact in the public sector.

Brandon-Jones, A., & Kauppi, K. (2018). Examining the antecedents of the technology acceptance model within e-procurement. *International journal of operations & production management,* 38(1), 22-42. doi:https://doi.org/10.1108/IJOPM-06-2015-0346

Chomchaiya, S., & Esichaikul, V. (2016). Consolidated performance measurement framework for government e-procurement focusing on internal stakeholders. *Information Technology & People,* 29(2), 354-380. doi:https://doi.org/10.1108/ITP-12-2013-0210

Doherty, N. F., McConnell, D. J., & Ellis-Chadwick, F. (2013). Institutional responses to electronic procurement in the public sector. *International Journal of Public Sector Management,* 26(6), 495-515. doi:https://doi.org/10.1108/IJPSM-04-2012-0048

Godfred, M., Evans, N., Doumbia, M., & Hanson, O. (2015). E-procurement as an alternate paradigm to the challenges of procuring goods and services in the public sector-a case study of Ghana Cocoa Board. *European Journal of Business and Management,* 7(2), 68-72.

Hidayat, R. (2015). Local Government E-Procurement Practices in Indonesia: Accountability, Efficiency, and Barriers. *Journal of US-China Public Administration,* 12(2), 105-114. doi:https://doi.org/10.17265/1548-6591/2015.02.003

Hsiao, C. H., & Yang, C. (2011). The intellectual development of the technology acceptance model: A co-citation analysis. *International Journal of Information Management,* 31(2), 128-136. doi:https://doi.org/10.1016/j.ijinfomgt.2010.07.003

Khan, M. M. R., & Al Amin, M. M. H. (2021). A study on digital transformation in the healthcare sector of Bangladesh: Current scenario and the future roadmap. *Journal of Governance and Accountability Studies*, 1(2), 163-176. doi:https://doi.org/10.35912/jgas.v1i2.747

Luthra, S., Kumar, V., Kumar, S., & Haleem, A. (2011). Barriers to implement green supply chain management in automobile industry using interpretive structural modeling technique: An Indian perspective. *Journal of Industrial Engineering and Management (JIEM),* 4(2), 231-257. doi:https://doi.org/10.3926/jiem.v4n2.p231-257

Mahmood, S. A. I. (2010). Public procurement and corruption in Bangladesh confronting the challenges and opportunities. *Journal of public administration and policy research,* 2(6), 103.

Mahuwi, L., & Israel, B. (2024). Promoting transparency and accountability towards anti-corruption in pharmaceutical procurement system: does e-procurement play a significant role? *Management Matters,* 21(1), 20-37. doi:https://doi.org/10.1108/MANM-07-2023-0027

Mansaray, A. K., Lapkoff, M., & Little, A. (2018). Public Procurement Compliance Behavior and Its Effect on Quality Service Delivery: A Case Study of The Electricity Company of Ghana (Ecg) *International Journal of Supply Chain Management,* 3(2), 60 – 85.

Mukhlis, M., Makhya, S., Yulianto, Y., & Aviv, M. (2025). The challenges of digital governance in the Regions: Study in Central Lampung Regency, Indonesia. *Journal of Governance and Accountability Studies*, 5(1), 33-46. doi:https://doi.org/10.35912/jgas.v5i1.2448

Musah, A., Gapketor, E. D., & Anokye, F. K. (2018). Determinants of internal audit effectiveness in State-Owned Enterprises (SOEs) in Ghana. *The Journal of Accounting and Management*, 8(1), 52-68.

Neupane, A., Soar, J., & Vaidya, K. (2012). The potential of e-procurement technology for reducing corruption. *International Journal of Information Technology and Management*, 11, 273-287. doi:https://doi.org/10.1504/IJITM.2012.049997

Neupane, A., Soar, J., Vaidya, K., & Yong, J. (2012). *Role of public e-procurement technology to reduce corruption in government procurement.* Paper presented at the Proceedings of the 5th international public procurement conference (IPPC5).

PPA. (2010). E-PROCUREMENT : IS GHANA READY? Retrieved from https://ppa.gov.gh/wp-content/uploads/2019/01/20101112-PPA-E-Bulletin-Nov-Dec-2010-Final.pdf

Putri, A. M., Syamsu, S., & Triono, A. (2024). Policy to replace electronic card into population digital in South Lampung Regency. *Journal of Governance and Accountability Studies*, 4(1), 19-29. doi:https://doi.org/10.35912/jgas.v4i1.1919

Quashie, M. K. (2019). Causes and Costs of Procurement Irregularities in Ghana's District Assemblies. *International Journal of Law and Society*, 2(4), 58. doi:https://doi.org/10.11648/j.ijls.20190204.11

Setiawan, T., & Wijayati, N. (2024). Evaluation of risk management for optimizing service quality in XYZ regional general hospital. *International Journal of Financial, Accounting, and Management*, 6(3), 301-312. doi:https://doi.org/10.35912/ijfam.v6i3.2185

Siita, A. (2014). Assessing the potential of electronic procurement in the public sector: The case of Accra Metropolis: Master of Science Dissertasion), Kwame Nkrumah University of Science and ….

Šumak, B., Heričko, M., & Pušnik, M. (2011). A meta-analysis of e-learning technology acceptance: The role of user types and e-learning technology types. *Computers in Human Behavior*, 27(6), 2067-2077. doi:https://doi.org/10.1016/j.chb.2011.08.005

Tukamuhabwa, B. R. (2012). Antecedents and consequences of public procurement non-compliance behavior. *Journal of Economics and Behavioral studies*, 4(1), 34-46. doi:https://doi.org/10.22610/jebs.v4i1.300

Turner, M., Kitchenham, B., Brereton, P., Charters, S., & Budgen, D. (2010). Does the technology acceptance model predict actual use? A systematic literature review. *Information and software technology*, 52(5), 463-479. doi:https://doi.org/10.1016/j.infsof.2009.11.005

Ukwuoma, H. C., Cirman, N. E., & Oye, P. O. (2022). The role of e-Government in overcoming the consequences of the COVID-19 pandemic in Nigeria. *Journal of Governance and Accountability Studies*, 2(1), 79-92. doi:https://doi.org/10.35912/jgas.v2i1.1157

Worldbank. (2003). *Public Procurement Act of Ghana—Country Procurement Assessment Report*. Retrieved from

Yevu, S. K., Yu, A. T. W., Darko, A., Nani, G., & Edwards, D. J. (2023). Modeling the influence patterns of barriers to electronic procurement technology usage in construction projects. *Engineering, Construction and Architectural Management*, 30(10), 5133-5159. doi:https://doi.org/10.1108/ECAM-01-2021-0013