

Assessing the Effectiveness of Electronic Government Procurement (E-GP) On Organizational Performance in Water Utilities in Zambia: A Case of Lusaka Water Supply and Sanitation Company Limited

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Abstract

This study assessed the effectiveness of the Electronic Government Procurement (e-GP) system on organizational performance in water utilities in Zambia, with a particular focus on Lusaka Water Supply and Sanitation Company Limited (LWSC). The intention of the introduction of the e-GP system was to resolve inefficiencies in traditional procurements, improve transparency by reducing physical human interaction, reduce operational and organizational costs, reduce corruption, and finally improve service delivery. The e-GP system was made mandatory across all public institutions in Zambia through the enactment of the Public Procurement Act (PPA) No. 8 of 2020—including water utilities. Despite its mandatory status, adoption across most institutions remains inconsistent, with some still relying on manual systems alongside the e-GP. Manual systems contribute to delays, higher operational costs, ineffectiveness, and scanty accountability. A quantitative research design was used to evaluate three core objectives: the current level of e-GP adoption in water utilities, the impact of e-GP on procurement and organizational performance in water utilities, and finally, to find the challenges that water utilities face in the implementation of the e-GP system. Findings revealed that although the use of the e-GP had substantially improved, challenges persisted as more than half the respondents indicated resistance to change, inadequate technological infrastructure, inadequate system security, and high cost in staff training, which could have perhaps contributed to implementation gaps of the system. Despite the challenges cited above, the study found that the e-GP had positively influenced procurement performance by the reduction in advertisement costs, minimizing paper-based processes, enhancing transparency, and accelerating service delivery, with about 58% reporting faster service provision via the e-procurement. According to this study, it may be concluded that while the e-GP improves efficiency, reduces operational costs, and improves transparency and organizational performance at LWSC, its full realization is hindered by technological and organizational barriers. It is recommended that the ICT infrastructure be strengthened, system security be improved, staff capacity building be enhanced, and organizational change management be promoted to achieve the optimal e-GP uptake. This study contributes valuable insights for policymakers, utility managers, and all stakeholders seeking to make strides in improving procurement efficiency and organizational performance in the water sector.

Keywords: Assessing, Electronic Government Procurement (e-GP), LWSC, Evaluate, Organizational performance

1. Introduction and Background

Effective supply chains are essential for firms to remain competitive in today's global market (Namusonge, 2018). Effectiveness is achieved through synchronizing and coordinating supply chain activities from end-customers to suppliers (Masudin, 2021). Thus, procurement, shaping an organization's supplier relationships, becomes crucial (Eugenie & De Dieu, 2022). Globally, e-procurement practices are essential in supply chain management. In Brazil, Edquist et al. (2016) indicate that e-procurement can achieve real savings (Edquist, 2016). Similarly, Shahin et al. (2022) noted that e-procurement has enhanced competitive tendering, reducing corruption by an estimated 5.9%, compared to 3.7% with traditional paperwork.

Consequently, e-procurement is a developing trend in the public sector and is the foundation of global e-government projects. Many governments from across the world have started e-procurement efforts at the national or municipal level in recent years. Chile, Guatemala, India, Italy, Panama, Philippines, Romania, South Korea, and Thailand are now regarded as having the most sophisticated and effective public e-procurement systems at the national level. Service delivery to residents, especially marginalized groups, has improved across Africa due to governments maximizing budget purchasing power and enhancing procurement capabilities. Competitive and transparent public procurement systems are essential for sustainable development and prosperity in marginalized African communities.

This laid the foundation of the study by explaining the background, context and importance of e-procurement within the supply chain management. The chapter puts across the problem statement, research objectives, research questions and justification of the study. Further, it highlights the scope and structure of the dissertation, giving a roadmap for understanding the subsequent chapters

1.1 Background of the Study

Procurement is a comprehensive function that involves activities and processes aimed at acquiring products and services. These activities encompass various aspects such as negotiating contracts, conducting market research, evaluating suppliers, and purchasing goods and services. The primary objective of procurement is to obtain the right product or services at the right time, location, quality, and price, while ensuring efficiency and effectiveness throughout the entire purchasing process (Enporion, 2015). The internet has enabled companies to advertise and sell products/services online, reaching a global audience cost-effectively. E-procurement offers significant efficiencies, leading to its adoption by many organizations and government sectors (Dwomoh et al., 2023).

E-procurement is increasingly adopted to reduce corruption and enhance transparency in government processes (Makua, 2014). Many organizations and government sectors have adopted e-procurement for its significant advantages and efficiencies, facilitated by electronic data interchange (EDI) (Makua, 2014). Developing countries are increasingly adopting e-procurement systems to reduce corruption and promote transparency in government procurement processes (Phiri, 2019; Ngosa, 2019).

The Zambian government introduced the e-GP framework in 2016 to promote transparency, accountability, and efficient resource utilization. Zambia's Public Procurement Authority (ZPPA) mandates electronic government procurement (EGP) as per the Procurement Act No. 8 of 2020 as amended by Act No. 17 of 2023 (Chisanga, 2024). Circular No. 7 of 2021 made the use of e-GP mandatory under Section 16(1) of the Public Procurement Act No. 8 of 2020 (ZPPA, 2018).

Public procurement accounts for 15% - 35% of GDP, with transaction costs representing 45% of GDP in modern economies (Chen, 2021). E-procurement is seen as a means to simplify and enhance procurement processes, reducing costs and improving coordination (Aliyu & Ibrahim, 2021). Recent issues with fraudulent activities among procurement officers highlight the need for stringent e-GP implementation (PPA, 2020).

However, e-GP implementation is influenced by organizational culture, external environmental support, and top management backing (Mgidlana, 2014). Despite its potential, challenges such as limited ICT infrastructure and resistance to change persist in Zambia (Dwomoh et al., 2022). E-procurement is intended to enhance organizational performance through efficiency, effectiveness, and cost reduction (Aminah et al., 2018). Proper procurement practices, including EGP, can significantly impact business success by improving coordination, reducing costs, and increasing profits (Aliyu & Ibrahim, 2021). Adoption levels of e-GP vary across sectors and organizations (Dwomoh et al., 2022). In Zambia, e-procurement is still at the initial stages of adoption in both private and public sectors. Despite potential benefits, empirical evidence on e-procurement's impact on organizational performance in Zambia is limited, necessitating studies to understand its effectiveness and identify best practices

The introduction of e-GP systems in Zambia is part of a broader government initiative to improve public sector efficiency and service delivery. The ZPPA has been at the forefront of these reforms, aiming to streamline procurement processes, reduce corruption, and ensure better value for money (ZPPA, 2021). For LWSC, the adoption of e-GP represents a strategic effort to improve organizational performance, enhance service delivery, and ensure efficient utilization of resources. This study focuses on assessing the effectiveness of e-GP in enhancing the organizational performance of LWSC, given the critical role that water utilities play in public health and socio-economic development.

1.2 Statement of the Problem

Traditional procurement methods were declining due to inefficiencies, ineffectiveness, and barriers to social and economic growth (Creswell, 2017). In 2016, the Zambian government, through ZPPA, introduced the Electronic Government Procurement (e-GP) to address issues associated with manual procurement processes (Jennings, 2001). The e-GP was expected to drive technological advancement, reduce public spending, streamline transaction time, and promote transparency and efficiency (Jennings, 2001). Despite over 8 years since the introduction of e-GP, public institutions, including city councils, are not fully utilizing the system (Ngosa, 2019). The reasons for the slow implementation of e-GP in many public institutions remain unknown (Ngosa, 2019, cited by Chisanga, 2024). Public procurement entities continue to face challenges, including delayed payments and service delivery slowdowns, despite the shift to online procurement (Angeles and Nath, 2007, cited by Dwomoh et al., 2023). Many public sector organizations, including water utilities in Zambia, are slow in adopting e-GP, still relying on traditional methods that lead to delays, higher costs, and lack of transparency.

Limited research exists on the adoption and impact of e-GP on organizational performance within Zambian water utilities. The study aims to examine the adoption of e-GP by water utilities in Zambia, assess its impact on organizational performance, and evaluate the extent of its utilization in operations.

2. Literature Review

2.1 Previous Studies

In the 2020s Electronic Procurement (E-procurement) has become increasingly significant for numerous businesses globally, driven by technological advancements that has streamlined operations, enhanced speed, and improved efficiency within a competitive international landscape (Davilla, 2016). The substantial transformations in the operational frameworks and marketing approaches of public sector organizations undoubtedly elevates the role of procurement, positioning it as a critical factor in achieving the set objectives. Johnson et al. (2021) explains that, e-procurement not only adds value to the organization but also enhances overall operational efficiency. Among the capabilities in corporate processes is the electronic sourcing which refers to the use of online tools and decision-support systems aimed at improving the interaction between buyers and suppliers. Its primary goal is to identify, evaluate, select, and engage with both current and prospective suppliers, while also collecting data regarding their products and pricing (Greunen, 2019). This approach employs information and communication technology (ICT) to optimize the supplier selection through various features that includes self-service supplier portal modules, standardized criteria for supplier evaluation, centralized access to supplier data, customized vendor registration forms, and the monitoring of supplier performance using Key Performance Indicators (KPIs).

Changalima et al., (2023), found that procurement performance encompasses the assessment of the procurement department's capability to obtain goods, services, and materials in a timely, cost-efficient, and strategic manner, while also ensuring quality, compliance, and satisfaction among stakeholders (Chiappinelli, 2020). The evaluation of procurement performance is fundamentally based on two primary components: procurement effectiveness and procurement efficiency. By evaluating performance, an organization can measure its advancement towards established goals, identify areas of strength and weakness, and develop strategies for future improvements aimed at enhancing overall performance. Thus, procurement performance acts as a mechanism for monitoring and managing the effectiveness and efficiency of the procurement function (ibid). It is important to note that procurement effectiveness and efficiency are distinct competencies within the procurement domain. According to Abdi, et al, (2023), recognizing procurement as a critical function for effective county management, the leadership of Siaya County had invested in strategies that enhance the efficiency of its procurement processes, such as adoption of e-sourcing systems (Abdi, 2023).

Several studies have been carried out on the effect of E-procurement on organizational performance with little attention on small and medium scale enterprises. Although e-procurement methods are becoming more widely used worldwide, little is known about how these technologies especially affect the performance of small and medium-sized enterprises (SMEs). There is a dearth of empirical study on the complex obstacles and chances that small and medium-sized enterprises (SMEs) encounter when attempting to use e-procurement tools to improve their overall performance, cost-effectiveness, and operational efficiency in the particular socioeconomic environment of Accra. Closing this gap will help policymakers, corporate executives, and SME owners learn how to leverage the competitive advantage of SMEs in the area and optimize e-procurement procedures.

Omogbe et al. (2022) conducted a study focusing on the impact of electronic procurement practices on the sustainable competitive advantage of oil and gas firms in Nigeria's upstream sector, specifically in the Niger-Delta region. They examined the relationships between electronic tendering, electronic invoicing, electronic payment, and electronic auctioning in relation to sustainable competitive advantage. The findings revealed that electronic tendering, electronic invoicing, and electronic payment had a positive and significant relationship with sustainable competitive advantage in the upstream oil and gas industry. However, electronic auctioning, while not significantly influential, still showed a positive relationship with sustainable competitive advantage in this sector (Omogbe, 2022).

Hajir (2021) investigated the effects of e-tendering, e-sourcing, and e-payments on the operational performance of retail supermarkets in Nairobi City County, using the Technology Acceptance Model 2 and quantitative research methods. The study achieved an 88% response rate, with e-tendering, e-sourcing, and e-payments showing a strong positive correlation with operational performance. Regression analysis further confirmed a significant positive impact of e-procurement practices on supermarket operational performance.

Masudin et al., (2021) studied the impact of adopting e-procurement on the performance of manufacturing companies in Indonesia. Their research focused on four variables: top management support, information quality, e-procurement implementation, and company performance. The study confirmed three hypotheses: top management support significantly influences e-procurement implementation, information quality significantly affects e-procurement implementation, and e-procurement implementation significantly impacts company performance. It's worth noting that this study was limited to manufacturing firms and focused on small and medium-scale enterprises' e-procurement effects (Masudin, 2021).

Khaoya and Muchelule (2019) delved into the effects of E-procurement on Small and Medium Enterprises (SMEs) performance in Bungoma County. The results indicated a positive impact of most electronic procurement indicators on SME performance in Bungoma County, with the four variables significantly influencing SME performance. This study

sought to expand this understanding by investigating the impact of e-procurement (E-payment, E-tendering, E-invoicing) on the performance of small and medium-scale enterprises (Khaoya, 2019).

Gordon and Elizabeth (2023) assessed the performance of the Food and Agriculture Authority in Kenya, focusing specifically on the relationship between e-tendering and the authority's performance. The findings highlighted the significant impact of e-sourcing and e-tendering on the Food and Agriculture Authority's performance in Kenya (Gordon, 2023). Gathima and Njoroge (2018) conducted a study to understand the impact of e-tendering on the performance of the County Government of Nairobi. The study's findings, presented in tables, showed a positive and significant relationship between e-tendering practices and the performance of the Nairobi City County Government. The study recommended that the county government focus on adopting and implementing e-tendering to improve its overall activities (Gathima, 2018).

Ehiedu et al. (2023) explored the impact of the e-payment system (EPS) on the efficiency of banks in Nigeria, focusing on mobile payment, Automated Teller Machine (ATM), and Point of Sale (POS) systems (Ehiedu, 2023). They collected data from the Central Bank of Nigeria (CBN) spanning from 2012 to 2016 and conducted linear regression analysis using SPSS. The significance level was set at 0.05. However, their analysis revealed a P-value of 0.333, indicating no significant effect of EPS on banking efficiency in Nigeria.

Akujor and Eyisi (2020) conducted a study to understand how electronic payment impacts the performance of Small and Medium-sized Enterprises (SMEs) in Nigeria. They collected data through questionnaires, analyzed using tables, percentages, and Pearson correlation with SPSS version 22.0. The research followed a survey design. Their findings suggest that electronic payment has a significantly negative effect on the accountability of SMEs in Nigeria. Additionally, they noted a statistically insignificant negative relationship regarding the impact of e-payment on the revenue generated by SMEs in the country (Akujor, 2020). Kwabena et al. (2019) investigated the influence of digital payment systems on the performance of Small and Medium-sized Enterprises (SMEs) in Ghana. They utilized a technology-organizational-environmental framework to analyze the impact. The study uncovered substantial effects of technology, organizational factors, environmental factors, and the adoption of digital payment systems on the performance of SMEs (Kwabena, 2019). Alzoubi et al. (2022) investigated the correlation and impact of electronic payment methods on sales growth in the UAE banking industry, with a specific focus on the mediating role of online shopping. Using a quantitative approach and a correlational design, the study collected empirical data through a survey based on a 5-point Likert scale. The findings highlighted a significant and direct relationship between online shopping and sales growth (Alzoubi, 2022).

Nyamari et al. (2023) conducted a study to evaluate the impact of the electronic tender advertisement system on the operational performance of Small and Medium Enterprises (SMEs) in Kenya. The study concluded that there is a significant effect between e-tender advertisement and the operational performance of SMEs (Nyamari, 2023). Ifechukwu et al., (2023) conducted a study investigating the impact of e-procurement on technological proficiency in Small and Medium Enterprises (SMEs) in Enugu state. Their specific objectives included assessing the influence of e-informing on production development and determining the effects of e-informing and e-tendering on the operation of products in SMEs. The results indicated that e-informing significantly and positively affected production development in SMEs (Ifechukwu, 2023).

Makhamara (2022) investigated the impact of e-tendering on the performance of Small and Medium Enterprises (SMEs) in Nairobi City County, Kenya. The findings, presented via charts and frequency tables, indicated that e-tendering does not significantly influence SME performance (Makhamara, 2022). Ibrahim et al. (2023) examined the effects of e-procurement on both supply chain performance and supply chain innovation, alongside exploring the influence of supply chain innovation on supply chain performance. The findings indicated that e-procurement implementation had a positive and significant impact on supply chain performance and supply chain innovation. Moreover, supply chain innovation positively and significantly influenced supply chain performance. Notably, supply chain innovation was identified as a mediator in the relationship between e-procurement and supply chain performance.

The provided search results indicate a study by Oyugi and Kamaara (2023) that examines the relationship between e-procurement practices and procurement performance within Kenya's state enterprises. Another study investigates the influence of e-procurement on operational performance in Turkana County's County governments. These studies highlight the growing importance of e-procurement in enhancing efficiency and performance in public sector procurement processes. The research suggests a focus on how these digital practices impact operational outcomes and overall procurement success within the Kenyan context. The context suggests an interest in how these digital tools impact operations (Oyugi, 2023).

2.2 Theoretical Framework

Institutional Theory

This theory suggests that organizations adopt green procurement practices in order to align with societal norms and expectations relating to environmental sustainability. Organizations often face pressure from various stakeholders—including governments, customers, and private entities—to demonstrate their commitment to environmental responsibility. The adoption of e-procurement systems can therefore enhance an organization's legitimacy and reputation within its industry and the broader community.

According to Institutional Theory, companies implement certain strategies in response to forces external to the

organization (Scott, 1994). These strategies enable firms to gain acceptance from customers, regulators, and other stakeholders. The theory identifies three forms of isomorphic pressures—coercive, normative, and mimetic—which lead organizations to adopt similar practices (DiMaggio & Powell, 1983). Jennings and Zandbergen (1995) further explained the adoption of practices within environmental management, while other scholars have examined the positive influence of these institutional pressures on e-procurement adoption and implementation (Sarkis et al., 2010).

The Institutional theory is relevant to the study because the adoption, implementation and effectiveness of the e-GP system in the public sector including water utilities is heavily dependent on external pressures, regulations and norms, rather than internal organizational decisions. The government of the Republic of Zambia has made it mandatory (Coercive pressure) for all public institutions to use the e-GP. Therefore, the use of e-GP at LWSC is institutionally driven, not just internally motivated.

From the normative point of view (Normative pressure) the Institutional Theory argues that organizations adopt certain system in order to be legitimate, professional and in alignment of certain accepted standards. The normative pressure will help appreciate why LWSC may adopt the e-GP system and why effectiveness may be judged from the compliance point of view.

The Institutional Theory also highlights the mimetic isomorphism where organizations emulate other perceived to be the best practice. LWSC may adopt the e-GP by benchmarking other public institutions best performing in e-GP system implementation. As the study seeks to assess the effectiveness of the e-GP, the Institutional Theory helps explain why effectiveness might be limited by institutional forces rather than technical issues alone.

Stakeholder Theory

The term stakeholder has been defined in various ways by different researchers (Mainardes, Alves, & Raposo, 2011). However, most studies adopt Freeman’s (1984) definition, which describes a stakeholder as any individual or group that is affected by the commercial activities of an organization. Stakeholder Theory emphasizes that, beyond shareholders, there are numerous individuals and groups to whom an organization is accountable and who may be directly influenced by its actions or have explicit contractual relationships with it (Alkhafaji, 1989).

In the context of environmental responsibility, stakeholders increasingly expect firms to operate in ways that minimize negative externalities such as water pollution, improper solid waste disposal, deforestation, and the emission of harmful gases. They also expect organizations to take responsibility for mitigating any adverse environmental effects that may occur (Alkhafaji, 1989). When organizations fail to meet these expectations, they risk losing legitimacy, which in turn threatens their long-term survival.

From a strategic perspective, firms that adopt electronic procurement (e-P) practices can gain a competitive advantage. Barney (1991) argues that corporate reputation is a valuable organizational resource and provides evidence linking such reputational benefits to the adoption of e-procurement, which is increasingly recognized as having significant business value.

The relevance of the stakeholder theory in this study is because the success and effectiveness of the e-GP system in water utilities depends on the expectations, interests and influence of different groups who are affected by the procurement processes. Public Procurement does not operate in isolation but it is a network of stakeholders whose needs must be satisfied for the system to function effectively.

If stakeholders perceive procurement as inefficient or ineffective, organizational performance and public trust decline. Trust leads to better supplier relationships, improved service delivery and a stronger public confidence.

Conflicts of interests or resistance among stakeholders may prevent e-GP effectiveness such as staff resistance to change, suppliers struggling to use the e-GP, conflicting needs between regulators and management and budget constraints at the utility level.

The stakeholder theory provides a holistic, people driven perspectives that complement technological and institutional explanations of the e-GP effectiveness.

2.3 Conceptual Framework

A conceptual framework represents the expected relationship between research variables, guiding the study and drawing coherent conclusions. In this study, the independent variables encompass the need analysis, E-tendering, procurement staff competency, and internal processes. The dependent variable is performance. The hypothesized relationship is illustrated in Figure 1 below.

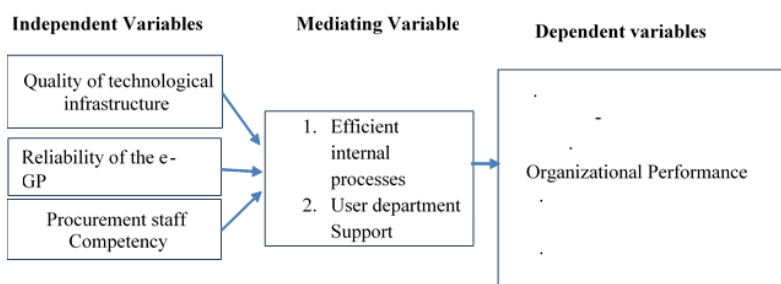


Figure 1: Conceptual Framework (Source: Authors, 2025)

3 Research Methodology and Design

In order to provide accurate results, the researcher adopted quantitative analysis research designs. Normally, a research design will determine the type of analysis you should carry out to get the desired results. To what extent your design is good or bad will depend on whether you are able to get the answers to your research questions (Blaikie, 2000). As indicated by Sekaran and Bougie (2016), a population is recognized as the whole gathering of individuals, occasions or things of premium that the analyst needs to explore or determined by the objectives of the examination (Sekaran, 2016). The study population for this study will be all employees at Lusaka WSC who are 722 in total according to the data obtained from NWASCO sector report of 2023. A percentage or decimal value that tells how confident a researcher can be about being correct; states the long-run percentage of a confidence interval that will include the true population mean” (Zikmund et. al., 2013). Generally, a 95% of confidence level is acceptable for most of the research. Cochran, (2007) Stated that the researcher can calculate the sample size of each most essential item scale of the survey by deciding the acceptable margin of error. According to Yamane (1967) and Israel (1992), the researcher can use the following simplified formula to calculate the sample size when population size is known.

The formula is: $n = N / (1 + N * e^2)$.

Where, n = sample size N = Population size

E = Acceptable magnitude of error

Confidence level = 95%; E = 0.05, p = 0.5, N = 722

Therefore; $n = 722 / (1 + 722(0.05)^2)$

$n = 257.39$

The researcher used the Purposive sampling techniques to collect the quantitative data. The Purposive method was used to identify and select a homogenous sample of Lusaka employees that met the predetermined criterion of importance. This method is justified because it helped identify and select respondents who were especially knowledgeable about the study under consideration, and unlike the use of probabilistic or random sampling which is used to ensure the generalizability of findings by minimizing the potential for bias in selection and to control for potential influence of known and unknown confounders (Palinkas et al., 2015). The questionnaires enabled quantitative data was collected in a standardized manner, to ensure the data “is consistency and coherent for the analysis” (Roopa and Satya, 2012).

Quantitative data was counter-checked and coded. The quantitative data was being doublechecked, cleaned, and then coded. Coding of quantitative data was followed by entering it on statistical package for social sciences software for analysis. The goal is to produce statistics called descriptive, and finally micro soft excel was used where some statistics were manipulated to make figures and graphs. Data was turned into tables, allowing for a variety of graphical presentations. After the statistics are used to create tables, graphs, and figures, objectivity in terms of interpretation, valid conclusions, and recommendations became possible.

4 Findings

4.1 What is the current level of adoption of E-GP systems in Zambian water utilities?

The study found that most respondents (105) representing 51.2% expressed that LWSC has already implemented online procuring, 25.9% thought the company intends to implement online procuring. The study found that 40.5% disagreed that LWSC has bid submission opening, 24.4% remained neutral. This finding agrees with Abdi, et al, (2023), who found that recognizing procurement as a critical function for effective county management, the leadership of Siaya County had invested in strategies that enhance the efficiency of its procurement processes, such as adoption of e-sourcing systems. Electronic sourcing plays a vital role in enhancing the effectiveness of procurement functions, with empirical research generally indicating a favorable correlation between electronic sourcing and procurement performance. In Bangladesh, Blum et al. (2023) conducted a study on introducing e-procurement in Bangladesh: the promise of efficiency and openness which compared electronic procurement methods to traditional paper-based systems from 2011 to 2016. Using a regression model for prediction purpose, the study demonstrated that elements of e-procurement, such as e-sourcing and e-tendering, led to improved access to bidding opportunities, stimulated economic growth, increased administrative efficiency, reduced tender processing times, and enhanced government savings.

However, the study found that 15.6% indicated strongly disagreed on the application of electronic procuring on notice of contract award, 30.7% disagreed. The study further shows that 11.2% indicated strongly disagreed on the application of electronic procuring on generation of evaluation reports, 25.9% disagreed. This negative finding is challenged by the institutional theory adopted by this study that suggests that organizations adopt green procurement practices to conform to societal norms and expectations regarding environmental sustainability. Organizations may face pressure from various stakeholders, including governments, customers, and private companies, to demonstrate their commitment to environmental responsibility. Adopting E-procurement can enhance an organization's legitimacy and reputation within its industry and the broader community. Institutional theory provides that companies undertake certain strategies based

on forces outside the company.

4.2 What impact does the e-GP have on the organizational performance of water utilities in Zambia?

The study found positive results on the extent of reduced advertisement cost on the impact the e-GP has on the procurement with more than 55% indicating 56.6% great extent, and more than 60% respondents indicated great extent on the extent of minimized paper trail on tendering exercise. Furthermore, the study shows that more than 58% indicated that E-procurement has made the delivery of services much faster. This finding is in harmony with Al-Yahya and Panuwatwanich (2018) who found that a company that implements e-procurement benefits from the following: Initially, there will be a reduction in costs during the tendering process as electronic transmission eliminates postage, paperwork, and preparation expenses. Additionally, electronic submission accelerates document delivery compared to traditional mail. It enhances order tracking and facilitates timely rectification of errors in previous orders, thereby improving overall efficiency. Second, there is a reduction in the amount of time it takes to find materials. Shakya (2020) used a qualitative experimental design to evaluate the cumulative impact of fully integrated e-procurement systems across four public institutions in Nepal. The findings demonstrated a 20% increase in contract performance indicators, including reduced cycle time, improved transparency, and enhanced fairness.

This result fits well with institutional theory that adopting E-procurement can enhance an organization's legitimacy and reputation within its industry and the broader community. Institutional theory provides that companies undertake certain strategies based on forces outside the company (Scott, 1994). These strategies help companies to enhance their acceptance by the customers and other stakeholders. Aspects of isomorphic pressures have been recognized namely coercive, normative and mimetic pressures, which lead to the implementation of similar practices across firms (DiMaggio and Powell, 1983). Jennings and Zandbergen (1995) gave an explanation on the adoption of practices within the environmental context, including other scholars who have further explored the positive impact of these institutional pressures on E-procurement (Sarkis et al., 2010). Therefore, the study concludes that there is a positive relation between E-government and performance of organisation as assumed on the conceptual framework under figure 2.1.

However, the study shows that 13.2% indicated very small extent of online call for quotations has ensured effectiveness, 25.9% small extent, 36.6% moderate, 13.2% great extent and very great extent accordingly. Furthermore, the study shows that 18% indicated very small extent on how much online call for requisitions has increased accountability, 25.4% indicated small extent, 11.2% moderate, 36.1% great extent, and 9.3% very great extent.

4.3 What extent of challenges do Zambian water utilities face in implementing the e-GP system?

On challenges Zambian water utilities face in implementing the e-GP systems, the study found that more than 56.6% indicated great extent, and 31.2% very great extent. On the cost of staff training, the study indicated more than 51.7% great extent, and 21% very great extent. On resistance to change, the result show that more than 57% respondents shows that there is resistance to change among LWSC employees. Furthermore, the study indicated found that more than 46% shows that there is lack of adequate systems security on the implementation of E-GP systems at LWSC with 56.1% expressing inadequate technological infrastructure. This result agrees with Shrestha et al., (2019), found that uptake varies based on technological readiness, legal environment, and perceived barriers like security risks. Previous discussions have shown that the quality of information plays a significant role in the successful implementation of e-procurement. Kassim and Hussin (2013), investigated the factors affecting the success of e-procurement for the Malaysian government. Their study shows that transparency, efficiency, and information quality are the most important factors contributing to the success of e-procurement.

On resistance to change, the result show that more than 57% respondents shows that there is resistance to change among LWSC employees. Furthermore, the study indicated found that more than 46% shows that there is lack of adequate systems security on the implementation of E-GP systems at LWSC with 56.1% expressing inadequate technological infrastructure. This result agrees with Shrestha et al., (2019), found that uptake varies based on technological readiness, legal environment, and perceived barriers like security risks. Previous discussions have shown that the quality of information plays a significant role in the successful implementation of e-procurement.

5 Conclusion

The study found a high level of adoption of the e-Government Procurement (e-GP) system at Lusaka Water Supply and Sanitation Company (LWSC). Specifically, 56.6% of respondents indicated that the system had been adopted to a great extent, while 31.2% reported adoption to a very great extent. Regarding the cost of staff training, 51.7% of respondents indicated that it affected implementation to a great extent, with 21% indicating a very great extent.

The findings further revealed notable resistance to change, with more than 57% of respondents indicating that resistance to the e-GP system exists among LWSC employees. Additionally, 46% of respondents reported a lack of adequate systems security in the implementation of the e-GP system, while 56.1% indicated inadequate technological infrastructure.

Despite these challenges, the study revealed positive impacts of e-GP on procurement performance. More than 55% of respondents indicated, to a great extent, that e-GP has reduced advertisement costs, while over 60% reported a great extent of minimized paper trails during the tendering process. Furthermore, more than 58% of respondents indicated that e-procurement has significantly improved the speed of service delivery.

Overall, the findings demonstrate that procurement performance encompasses the procurement department's ability to acquire goods, services, and materials in a timely, cost-effective, and strategic manner, while ensuring quality, regulatory compliance, and stakeholder satisfaction.

This study assessed the effectiveness of the Electronic Government Procurement (e-GP) system on organizational performance in Zambian water utilities, with a specific focus on the Lusaka Water Supply and Sanitation Company (LWSC). The chapter revisited the three core objectives of the study:

- (1) to determine the level of adoption of the e-GP system in water utilities;
- (2) to evaluate the impact of e-GP on organizational performance; and
- (3) to determine the extent of the challenges faced by water utilities in implementing the e-GP system.

The findings revealed that more than half of the respondents acknowledged that procurement processes at LWSC had transitioned to digital platforms, signifying substantial progress in the adoption of e-GP. Despite occasional system downtime and operational disruptions, the e-GP system has introduced several notable benefits. These include a reduction in advertisement costs, improved transparency, enhanced auditability, and the minimization of paper usage during the bidding process. These outcomes indicate that the system is contributing positively to procurement efficiency and organizational performance.

However, the study also identified several challenges that hinder the full realization of e-GP benefits. A major concern is the lack of integration between internal organizational systems and the e-GP platform, leading to duplication of tasks, inefficiencies, and delays in processes such as contract award generation, invoicing, and order processing. Additionally, inadequate ICT infrastructure, limited digital skills, user resistance to change, and the high cost of continuous staff training further constrain effective implementation.

The study emphasized that to maximize the benefits of e-GP, water utilities must invest in robust ICT infrastructure, ensure continuous capacity building, and strengthen system integration to support seamless data flow across procurement functions. Addressing these challenges will enhance system reliability, improve procurement performance, organizational performance, and support the broader digital transformation agenda within Zambia's public procurement landscape.

Declaration of Competing Interests

The authors declare that they are not aware of any competing financial interests or personal relationships that may have influenced the work described in this document.

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Ethical considerations

The article followed all ethical standards appropriate for this kind of research.

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