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An Evaluation of Institutional, Technological, and Policy Factors Affecting the Implementation of the Electronic Government Procurement (e-GP) System in Zambia

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Abstract

The study assessed the institutional, technological, and policy factors that influence the effective implementation of the electronic Government Procurement system in Zambia's public spending agencies. The main objective of the study was to establish how internal capacity, technological readiness, and policy operationalization influence the adoption and performance of the e-GP system, with a view to identifying constraints and proposing measures for improvement. It adopted an embedded mixed methods research design, where both quantitative and qualitative approaches had been combined. The quantitative data were attained from the 216 responses to structured questionnaires for procurement practitioners and related officers in selected spending agencies, while qualitative insights were obtained through key reviews of documents and open-ended questions. Descriptive statistics and inferential analyses were conducted to test various relationships among the variables, while thematic analysis was applied to qualitative data to contextualize findings. The results showed that institutional capacity, especially staffing levels, technical skills, and continuous training, was still the most influencing factor in effective e-GP implementation. Technological challenges related to unstable internet connectivity, frequent power interruptions, limitation of ICT infrastructure, and system downtimes negatively impinged on system reliability and user confidence. Policy factors such as weak enforcement of mandatory e-GP usage, limited integration of the system and inadequate dedicated ICT funding further constrained full adoption. Despite these challenges, user willingness to utilize the e-GP system was generally high. The study concludes that successful e-GP implementation requires a coordinated approach that simultaneously strengthens institutional capacity, enhances technological infrastructure, and reinforces policy enforcement. It recommends sustained capacity-building programs, increased ICT investment, improved system integration, and stronger regulatory enforcement. Future research should explore longitudinal impacts of e-GP reforms and assess supplier-side adoption dynamics. The study has important implications for policymakers and public sector managers seeking to enhance transparency, efficiency, and accountability in public procurement through digital systems.

Keywords: Adoption of e-GP, Electronic government platform, Institutional factors, Policy factors, Technological factors

1. Introduction

Public procurement is an important aspect of government spending that is critical to service provision and development at the country's level. Public procurement in Zambia is pegged at 15% of Gross Domestic Product, showing how important the creation of an effective, transparent, and accountability-oriented procurement system is (OECD, 2021). Traditional manual systems of public procurement have various drawbacks and risks associated with them, such as inefficiencies, high transaction costs, and risks associated with malpractice on the side of those involved in public procurement practices. In Kenya, Zambia's public procurement system was revamped by the Zambia Public Procurement Authority (ZPPA), which piloted the use of the Electronic Government Procurement (e-GP) system under Public Procurement Act No. 8 of 2020 and launched it in 2016 with an objective of fully adopting this new approach by all public spending agencies by 2024.

Though Zambia was one of the earlier adopters of an end-to-end e-GP system in Africa, its adoption has been patchy. Only less than half of the over 700 procuring entities were utilizing the system as of March 2025 despite it being mandatory and intense sensitization and training being conducted (ZPPA, 2024). This was in contrast to other digital public sector systems that have been implemented in Zambia by other Regulatory entities, suggesting that the e-GP implementation faces distinct structural and operational hinderances.

Most of the literature shows that the introduction of the e-GP system can effectively reduce procurement cycle times, improve interagency coordination in procurement matters, and enhance better decision-making through automation and real-time information availability. As Wu et al. (2007) and Bahadir et al. (2024) noted, despite the latent opportunities availed by e-GP reforms, existing literature on electronic government procurement in developing countries remains rare, especially with regard to the intertwined effects of institutional capacity, technological readiness, and the implementation of binding policies. This paper, therefore, seeks to address this knowledge gap, particularly in the context of Zambia, where the expected benefits of e-GP reforms have not been fully realized.

This study therefore examines the institutional, technological, and policy factors that influence the effective implementation of the e-GP system in Zambia's public spending agencies, with an aim at informing policy and strengthening public procurement reform.

The main objective of the study was to establish how internal capacity, technological readiness, and policy operationalization influence the adoption and performance of the e-GP system, with a view to identifying constraints and proposing measures for improvement. Specifically, the study sought to identify the institutional, technological and policy factors hindering the implementation of e-GP system, and assesses the organizational preparedness of government spending agencies for the adoption of e-GP.

2. Literature Review

2.1 Empirical Review

Factors Affecting Implementation of the e-Government Procurement System in Zambia

Implementation of the e-GP system in Zambia is shaped by a combination of institutional, technological, managerial, and regulatory factors. While the Government of Zambia has recorded some milestones in digitizing the processes related to public procurement, the effective and sustained utilization of the e-GP system across the spending agencies has remained a challenge. Understanding these factors is key to strengthening system adoption, improving its operational performance, and realizing the governance and efficiency gains intended.

Perceived Usefulness and User Acceptance

In the Zambian public sector context, perceived usefulness and user acceptance are the most vital determinants of e-GP implementation success. Procurement officers, controlling officers, and suppliers will be more inclined to accept and continuously use the e-GP system if this is perceived to enhance efficiency, transparency, and adherence to procurement regulations. Empirical evidence reflects that perceived usefulness significantly and positively influences e-GP usage behaviour in the context of (Alkhawaja, et al., 2022)

User acceptance in Zambia affects the level of system utilization, effectiveness of the training programs, and the quality of the feedback provided for system improvement. Whenever the users understand the e-GP system to be complex or not in agreement with the prevailing workflows, there may be some resistance to change, especially by those officers who have become accustomed to manual procurement processes. Training was found to enhance the competence and confidence of users in the improvement of the adoption and effective use of the system. Low acceptance levels diminish system utilization, efficiency gains, and undermine the expected return on investment derived from the implementation of e-GP.

System Infrastructure, Compatibility, and Integration

System infrastructure and technical preparedness remain amongst the most pertinent challenges confronting e-GP implementation in Zambia. In addition, reliable internet connectivity remains inconsistent at the ministry, province, and district levels, thus creating a barrier to access to the e-GP system for some, especially at the remotest spending agencies. Infrastructure has to be adequate, including hardware and software and also network capacity, to ensure the reliability of the system for continuity in service delivery.

It should also be compatible with the various existing systems of the government, like those for financial management and databases for supplier registration. Abdulkareem and Ramli, (2022) reveal that system compatibility is positively linked with e-GP adoption. In Zambia, insufficient interoperability and difficulties in integration could cause parallel processes to be performed more than once, which may be time-consuming and can be a source of inefficiencies. There is also the need for infrastructure that promotes scalability of the system, cybersecurity, and data protection to ensure that sensitive procurement information is safe. As Chatzimichailidou, et al,. (2024) noted, poor infrastructure and security vulnerabilities could considerably undermine users' confidence in and the sustainability of the system.

Top Management Support and Political Will

Top management support and political will play an essential role in implementing Zambia’s e-GP system. This involves leadership support for strategic direction, legitimacy, and continuity. From various studies, top management support was

observed to have a positive association with adoption. For instance, Maheshwari, Mohan, and Mishra, (2025) observed that top management had a positive association with adoption. In Zambia, political will would affect the development of policy, resource allocation, and stakeholder involvement. Clearly defined policies on procurement or ICT would lead an enabling environment in the implantation of e-GP (Sander, 2018), adequate resource allocation would focus on providing adequate resources for the development of e-GP systems (Halverson & Plecki, 2015), while political leadership would enhance the stakeholder engagement strategy with relevant actors, for example, spending agencies and suppliers (Jindal et al., 2019), respectively. Furthermore, monitoring and evaluation systems would be encouraged through political commitment, thus encouraging openness and accountability through digitalized procurement (Senyo,et, al, (2019; Ubarana, et al, (2019).

Legal and Regulatory Framework

This provides an underlying basis for the Zambia e-GP system, as it outlines electronic procurement, processes, as well as applicable laws. The Public Procurement Act No.8 of 2020 outlines an electronic basis for procurement, including electronic bid award through electronic media. This implies proceedings need to be aligned to an electronic system (Scovia & Jonath, 2024).

In addition to this, the role of the Data Protection, Cybersecurity, and Electronic Transaction Acts becomes vital to the safe storage and validity of the contract. Zambia's Electronic Communications and Transaction Act No. 4 of 2021 recognizes the validity of the documents electronically. However, the changes to the laws might create problems for Zambia's procuring agencies. In addition to this, the problem of the involvement of the vendors also remains a challenge. Due to the complexities of the regulations, it may not attract the vendors (McKendrick, 2016). As such, it becomes vital to consider the factors to make Zambia's e-GP effective (Zamzami, 2024).

2.2 The Research Gap

Though there have been numerous studies undertaken on electronic government procurement systems (e-GP), it has been observed that the existing literature is mainly focused on e-procurement in the private sector or developed countries, and there are large variations in the institutional capacities and technological and policy factors in developing countries such as those in sub-Saharan Africa. There is limited evidence in existing literature regarding e-GP implementation in sub-Saharan Africa.

Regarding the Zambian situation, the available research and policy analysis reports tend to concentrate either on the design of the system, the legal frameworks, or the descriptive analysis of the adoption of the mandatory use of the e-GP, without conducting any empirical analysis of the combined effects of the various factors as to why the mandatory use of the technology has failed to achieve widespread and successful implementation by the public expenditure agencies.

Further, there is limited evidence-based research available in this area regarding the challenges in the implementation of e-GP and their relationship with operational issues in procuring entities, such as manpower availability, expertise, enforcement of procurement rules, and integration of e-GP systems with overall public financial management systems.

The research fills a gap in the literature on digital procurement reforms in developing economies by carrying out a mixed methods analysis that considers institutional, technological, and policy aspects related to the implementation of e-GP systems in the public expenditure agencies in Zambia.

2.3 Theoretical Framework

Diffusion of Innovation (DOI) Theory

Diffusion of innovations theory explains the processes by which an innovation or ideas diffuse through a social system over time (Sahin, 2006). According to Rogers, (2003), the diffusion of innovations is affected by such factors or components as the innovations, communication, time, and the social systems. Adoption of innovations also happens and should be viewed as such and not merely as an event. People or organizations differ concerning their willingness to adopt new technologies.

Communication is an essential element of diffusion since individuals assess innovation adoption characteristics depending on an available communication source. Perceived innovation characteristics such as its relative advantage, compatibility, trialability, and observability create an imperative role in measuring adoption success. On another note, innovation acceptance depends on socio-economic factors, personality variables, and communication behaviours (Rogers, 2003).

About the implementation of e-GP, DOI Theory offers a useful model for comprehension concerning adoption tendencies across various institutional settings. These would enable planners and/or implementers to anticipate resistance, effectively plan communication approaches, and manage change while implementing technologies across government institutions.

Social Learning Theory

According to the Social Learning Theory, change in behaviour can be attributed to observation, imitation, and interaction with the surrounding environment. In other words, according to Bandura, (1977), human beings learn cognitively and socially even though they have not undergone any first-hand experience. One can learn a certain behaviour through observation and the reinforcement that accompanies it; this can be defined as vicarious reinforcement.

With regards to ICT adoption situations, Social Learning Theory underscores social agrimony, organizational culture, and

social experience, which have a vital role to play in ICT adoption processes, per Akers and Jennings, (2015). The theory also differs from other individual-based adoption models as learning phenomena for organizational settings can be described. This aspect makes social learning theory rather useful in relation to public sector-driven organizations.

In the context of e-GP system implementation, Social Learning Theory points to leadership commitment, training, communication, and usage of social learning mechanisms by others as factors that encourage acceptance of the system and reduce resistance. According to Carter and Bélanger (2004) social learning mechanisms have the capacity for increasing usability, improving perceptions, and supporting usage.

2.4 Conceptual Framework

The conceptual framework that is related to the study and cites the framework related to the development of a framework for the effective implementation of the electronic government (e-GP) system in government spending agencies in Zambia.

Independent Variables

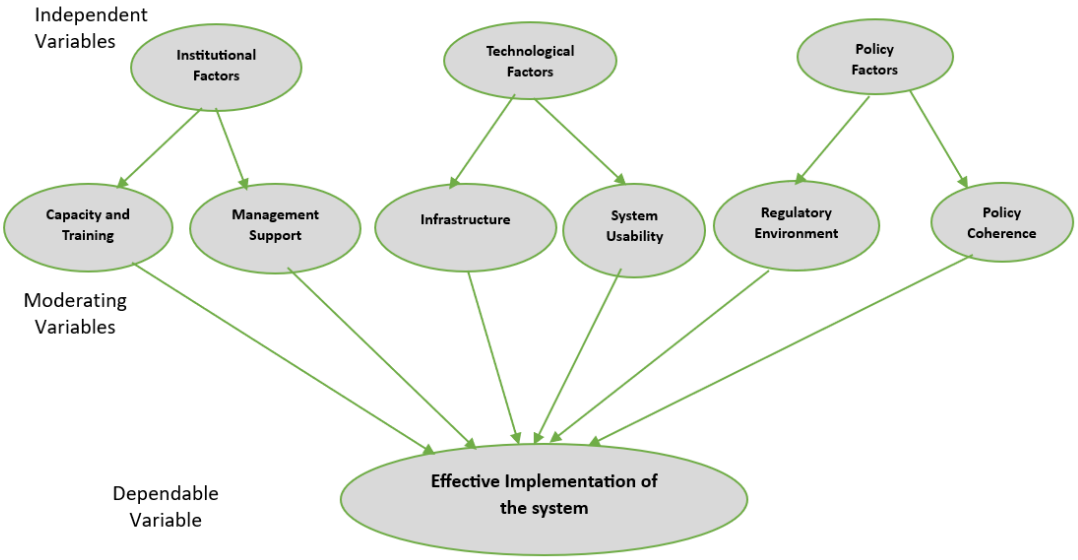

Figure 1 Conceptual frameworks for the study: Source: (Author, 2025) adopted (Khan, et al., 2021)

3 Research Methodology

3.1 Research Strategy

The study employed an embedded concurrent mixed method research design that combined both qualitative and quantitative methodologies to obtain a more thorough analysis of all factors that may effectively or otherwise impact the e-Government Procurement system roll-out to Zambia's government expenditure authorities. Embedded concurrent mixed research design factors were considered for this analysis to ensure data triangulation for more thorough findings. The quantitative component constituted the primary strand, focusing on the measurement and statistical analysis of institutional, technological, and policy factors influencing e-GP implementation. The qualitative component was embedded as a secondary strand through open-ended responses which provided contextual explanations and deeper insights into the quantitative findings.

The quantitative segment targeting procurement professionals at various government institutions, used a cross-sectional survey design (Savitz & Wellenius, 2023). This design assisted in examining the various associations that may exist between different variables assessed. It also enabled data generalization within a particular context.

As a complement to the above, qualitative research design used research strategies such as documentary research, where an effort was employed to know the policy, legal, institutional frameworks, and the system of procurement on the e-GP system by reviewing some of the laws, regulations, implementation guidelines and report on institution progress.

3.2 Data Collection and Analysis

Data was collected using a structured questionnaire as the primary instrument from procurement officers, ICT personnel, and policymakers from 216 sampled government spending agencies in Zambia. Stratified random sampling approach was used to select respondents proportionately in each stratum, while the selection of information-rich participants for interviews was guided by stratified purposive sampling. A five-point Likert scale, ranging from "Strongly Disagree" to "Strongly Agree," was used to quantify respondents' perceptions.

Quantitative data obtained from structured questionnaires were analysed using descriptive and inferential statistics. Descriptive statistics, such as frequencies, percentages, means, and standard deviations, were employed to summarize the

perceptions of the respondents on various factors that influence the implementation of e-GP, both on the institutional and technological dimensions and in policy. This helped in identifying the major trends and patterns in the data gathered from the different spending agencies. The qualitative data collected from responses to open-ended questionnaire items was subject to thematic analysis. The responses were coded and categorized according to emerging themes related to the study variables. The coding and categorization were based on the responses to the questionnaire, and they related to variables such as technical readiness, policy enforcement, user attitudes and institutional capacity. The results from the thematic analysis were used to enrich and support the results from the quantitative analysis. In ensuring the robustness of the research, the research used a triangulation approach, whereby the results of the quantitative and qualitative analysis were compared. The approach helped in the development of an in-depth understanding of the multi-dimensional challenges facing the e-GP implementation.

4 Results and Discussion

4.1 Demographics

Out of the 700 spending agencies, 216 agencies were targeted and 64.82% were males while 35.18% of the respondents were female. This is a good indication of female participation in procurement and e-GP-related functions. The age distribution showed that 58.8% of the sample population fell within the 36-45 age range, while 28.7% fell within the 26-35 age range. Only 12.5% of the sample population were above 46 years old, 60%, and the majority (80%) reporting a level of experience in the range of 11-15 years. This suggests that e-GP is being driven primarily by mid-career individuals with substantial professional experience, while older individuals in digital procurement processes are not sufficiently represented.

The respondents were highly educated, as reflected by the fact that 44.45% of the respondents held a bachelor's degree, while 43.05% held a master's degree. This shows that the respondents have a high level of knowledge, which is essential for the proper use of the e-GP system, thereby adding credibility to the findings.

Most of the institutions had small procurement teams, with 76.38% of the institutions having six or fewer staff members. This points to the capacity limitations of the institutions, which can impact the level of specialization, division of tasks, and the overall capacity to manage the e-GP system.

4.2 Training in e-GP Systems

Most of the respondents (89%) were trained to use the e-GP system, which points to a high level of preparedness for the e-GP system among the respondents. However, the qualitative results show that the training received by the respondents was inadequate or only theoretical, which impacts its usefulness.

Across all the demographic categories, the results show a positive or negative aspect of the e-GP system in Zambia, which is supported by a relatively educated, experienced, and operationally active workforce but limited by capacity limitations of the institutions and the level of skill application. This is supported by Waduu and Omido (2025), who stated that age and education significantly influence the adoption of e-procurement system while gender is not significant.

4.3 Institutional, technical and Policy factors that hindering the implementation of the e-GP system

Institutional factors

From the findings, it is revealed that the effectiveness of the implementation of e-GP is still dependent on the capacity of the institutions. Though the workforce in charge of implementing the e-GP is composed of experienced and educated procurement professionals, the structural capacity of the institutions is still a problem. For instance, most of the procuring entities have small procurement units, with more than 76% having six or fewer staff.

Even though 89% of the respondents had received training, it was revealed that the training received was not effective and is mostly theoretical in nature. Moreover, it is revealed that the effectiveness of the implementation of e-GP is also dependent on leadership commitment, poor institutional coordination, and users' attitudes, such as their reluctance to use the system. This reveals that the effectiveness of the implementation of e-GP is not dependent on the availability of human resources but also on the availability of institutional support and managerial involvement. This finding reiterates long-standing empirical evidence that human resource capacity lies at the core of digital procurement transformation (Charnor & Quartey, 2024). From the results, elements of DOI theory are evident, where user resistance and passive attitudes reflect slow progression from early adoption to full institutionalization. This suggests that while awareness exists, the transition to full usage is hindered by weak organizational support structures.

Technological Factors

Technological conditions emerged as one of the most significant constraints to the effective implementation of the e-GP system. This was despite a generally high perception of technical readiness, where 93.7% of the respondents rated their institutions as "good" or "excellent" in terms of technological conditions. However, there were major infrastructural challenges facing the implementation of the e-GP in Zambia.

The major barriers included system downtime, ICT support, internet connectivity, and power outages. The results also

showed that system reliability and infrastructure were more significant than system complexity because there were fewer complaints about system usability. This is supported by Gitonga, (2021) who asserts that technological factors affecting e-procurement adoption include fear of security and confidentiality issues, lack of IT infrastructure, inadequate vendor support, insufficient needs assessment, lack of technical expertise, and unavailability of software.

The qualitative results also showed that system performance and low levels of electronic participation among suppliers were major barriers because they affected competition in the procurement process. Generally, the results showed that there were technological readiness issues in Zambia because infrastructure was a major barrier to effective system functionality and adoption.

From a DOI point of view, unstable ICT infrastructure reduces the relative advantage and compatibility of the e-GP system in relation to traditional procurement systems.

In addition, the results confirm that technological readiness is not just about technological availability but also about infrastructure reliability and support systems, which play an important role in facilitating diffusion of system adoption.

Policy Factors

Policy related findings revealed that though there is a framework in place for the implementation of the e-GP system, its efficacy is hampered due to poor enforcement and implementation. Moreover, respondents were very vocal about the need to improve policy interventions in terms of system integration with other government platforms, training and capacity building, ICT funding, and enforcement of mandatory e-GP usage.

The absence of effective enforcement mechanisms allows parallel manual processes in procurement to continue, defeating the very essence of digital transformation in government procurements. Lack of funding was also highlighted as a limit to system maintenance and upgrade support, while interoperability with other systems like financial management platforms also poses problems.

The qualitative results also revealed that due to poor enforcement of policy in terms of adoption among spending agencies, it also affected the efficacy of policy in general. Thus, it is seen that the efficacy of policy is not just dependent on its presence but also on its enforcement strength.

From a DOI perspective, the weak policy enforcement mechanism means that institutional pressure, which is sometimes required for diffusion, is lacking. The importance of system integration, funding and capacity building policies can be seen as a response to the need for compatibility, complexity reduction, and facilitating conditions, as discussed by both the DOI and TOE frameworks.

4.4 Strategies for Overcoming the Challenges of Implementing the e-GP System in Zambia

The findings show that the challenges facing the e-GP system need to be tackled through a multidimensional approach that encompasses financial, managerial, human, and technical aspects. This was also echoed by Yenu, et al., (2022) who stated that implementation strategies are grouped into organisational dynamics, industry technology ecosystem, and innovation adaptation mechanism. Dedicated funding for ICT infrastructure appears to be the most supported strategy, with 31% of the respondents supporting the strategy, followed by management support, which garnered 26%, while staff training and improving internet connectivity received 22%, and improving ICT technical support received 21% of the respondents' support. Therefore, the findings suggest that the successful implementation of the e-GP system in the Zambian public sector depends on the simultaneous strengthening of the infrastructure investment, management commitment, capacity building, connectivity, and technical support mechanisms.

4.5 Synthesis with Conceptual Framework

The findings clearly confirm that the implementation of e-GP is a multi-dimensional process, with the success of the implementation influenced by an interplay of institutional capacity, technological preparedness, and the overall policy environment in which public procurement reforms take place. These three dimensions do not function independently but interactively determine the degree to which institutions can adopt, internalizing, and sustaining the use of the e-GP system in their daily procurement work.

The statistically significant influence of internal capacity, especially that of skilled personnel, is therefore in strong accordance with capability theory, which posits that an organisation's performance is constrained or enabled by the skills, competencies, and knowledge of its workforce. In this respect, it follows from e-GP that without sufficient human resource capability-such as digital literacy, basic procurement knowledge, and the ability to navigate system functionalities-institutions, no matter how good their infrastructure or policy frameworks, will not be able to achieve meaningful digital transformation. It supports the view that organisational capability remains the fundamental resource underpinning effective utilisation of technological innovations.

In a similar vein, the identified influence of computer adequacy reinforces models of technological readiness that emphasize functional ICT infrastructure as a prerequisite for effective electronic systems adoption. For many public institutions, computers are the main access point through which users interact with the e-GP platform; hence, insufficient, outdated, or malfunctioning hardware is a direct inhibitor to the ability of users to efficiently perform tasks on the system. This finding corroborates technology acceptance and readiness frameworks, which emphasize that organizations need to possess appropriate tools, devices, and digital infrastructure prior to leveraging the benefits of e-procurement.

Put together, these lessons reinforce that effective implementation of e-GP is not merely about substituting a digital

platform for the current analog environment; on the contrary, strong organizational support, technological underpinning, and enabling policy conditions are imperative. How these elements happen to interact is what would, in fact, determine if institutions remain compliant with e-GP requirements just on paper or if they internalize the system within their procurement culture.

4.6 The implications of the finding on the Information Technology Adoption Theories

The findings of this study can be well interpreted using some key theories related to the adoption of ICTs, namely the DOI, Social Learning and the Information Success theories framework.

- The DOI theory explains the reasons behind the poor uptake rate of the e-GP system, despite the high level of awareness and intention to adopt the system, as depicted by the high level of support for full transition which was at 79%. System challenges associated with the complexity, compatibility with other systems, and the lack of known success in implementing the system in other spending agencies can be attributed to the poor adoption rates. DOI theory rests on the premise that a new idea, practice or object has perceivable channels, time and mode of being adopted by individuals or organisations (Majanja & Kiplang'at, 2013). There is for information sharing on the usage statistics to ensure diffusion of innovation to spread to other spending agencies.
- The Social Learning Theory point of view, the adoption of the e-GP system is affected by factors related to observations, interactions, and shared experiences within the various institutions (Akers & Jennings, 2015). The study established that even though the general attitude towards the e-GP system is positive for adoption, the use of the system by spending agencies is inconsistent. This implies that the opportunities for learning from the experiences of other individuals and agencies are limited. In an environment where individuals can witness the effective use of the system by other individuals or agencies, the adoption of the system would likely improve. However, the fact that the use of the manual system for procurement still exists and the attitude of some officials is a challenge implies a lack of effective social reinforcement. In addition, the fact that the training offered is theoretical in nature implies a lack of learning by doing, which is a core component of the Social Learning Theory. This explains the disparity between the positive attitude and the lack of consistent use of the system.
- According to the Information Systems Success Model proposed by Delone and Mclean, (2003), the explanation for the findings can be attributed to system quality, information quality, service quality, system use, user satisfaction, and net benefits. Technological challenges were also noted by the study, which included system downtime, unstable internet connectivity, and limited ICT infrastructure. This is attributed to system quality which limits the usage by the users. The findings showed concerns regarding the integration of the system with other government systems and the delay in accessing procurement information. In addition, the lack of technical support and training can be attributed to the system service quality. Despite the high perceived usefulness and intention to use the e-GP system by the users, the system use and user satisfaction are still lacking. This limits the realisation of the expected benefits from the e-GP system.

Collectively the theories and the findings indicate that the implementation of the e-GP in Zambia is indeed a complex socio-technical phenomenon that requires the integration of user acceptance, institutional readiness, technological capability, and policy support for the successful adoption of the e-GP system.

5 Conclusions and Recommendations

5.1 Conclusion

The study concludes that the success of Zambia's e-GP system depends on the collective strengthening of institutional capacity, technological infrastructure, and policy enforcement. Institutional readiness, reflected through user training, management support, and technical expertise, emerged as a decisive factor. Agencies with higher managerial engagement and dedicated ICT support exhibited greater readiness to use e-GP effectively. This confirms Wilson and Mergel, (2022) assertion that the institutional dimension of e-government projects is often more critical than the technological one.

Technological challenges remain central to e-GP performance. Challenges such as limiting internet bandwidth, system uptime inconsistency, and outdated hardware stifle efficiency in the implementation of the e-GP system. Similarly, the World Bank (2016) shared that digital procurement systems thrive only were underpinned by reliable ICT infrastructure.

Policy inconsistencies persist in that not all spending agencies fully adhere to the mandatory use of e-GP. This partial implementation undermines system-wide data integration and transparency. Consistent with Kasiwi, et al., (2025), this underscores the importance of governance coherence and interagency alignment in digital transformation.

5.2 Recommendations

For Government Ministries and Spending Agencies

- Government ministries, departments, and agencies should establish regular, structured, and continuous e-GP training programs for improved institutional readiness that ensures continued use of the system. Neupane et al. (2012) note that capacity building must be ongoing for effective e-procurement implementation since skills depreciate without reinforcement and system changes require periodic retraining. In this regard, embedding continuous e-GP training within annual institutional capacity-development plans will significantly raise the level of

e-GP adoption and operational efficiency.

- Spending Agencies should invest in modern computers and stable internet- institutions should focus on providing modern, fully functional computers and access to reliable high-speed internet that will support efficient use and uninterrupted operation of the e-GP system.
- Institutions should increase staffing levels within procurement units and assign specialized roles to enhance efficiency and strengthen e-GP implementation capacity.
- For the long-term sustainability and effectiveness of the implementation of e-GP, government institutions should provide specific annual budgets for ICT upgrades, maintenance, and continuous capacity building. Digital procurement systems involve ongoing investments to upgrade hardware, software, and network infrastructure.

For Policymakers and Regulators

- Enforce the mandatory use of e-GP by the Zambia Public Procurement Authority.
- Strengthen integration between e-GP and other government systems to ensure smooth data flow, reduce duplication, and improve the overall procurement efficiency.
- ZPPA should enhance training for ministries and spending agencies so that the are more practical and addresses the needs of e-GP system users.

For Future Research

- Future studies could carry out comparative research across a wider range of ministries, departments, and agencies, assessing variation in e-GP readiness, adoption, and performance. The study has assessed a sample drawn from several institutions but has not explicitly sought to explore the differences between them. Further studies may, therefore, investigate how organizational size, budget levels, leadership styles, or ministry-specific mandates influence the effectiveness of e-GP implementation.
- A longitudinal study on the adoption of e-GP over a considerable period would give insights into how institutions evolve in using digital procurement systems.

Declaration of Competing Interests

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Ethical considerations

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

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