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Challenges and Opportunities in Implementing E-Government Procurement Systems for Sustainable Procurement Reforms: A Case Study of Edo State

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ABSTRACT

This study investigated the challenges and opportunities associated with implementing e-government procurement (e-GP) systems as a catalyst for sustainable procurement reforms in Edo State, Nigeria. The overarching objective was to examine the effectiveness of the current e-GP framework and its alignment with sustainable procurement goals. Specifically, the study evaluated the existing status of e-GP systems, identified major implementation barriers, assessed their impact on sustainable procurement practices, explored enabling opportunities, and provided evidence-based policy recommendations. Adopting a positivist research philosophy and a quantitative mono-method design, the study utilised structured questionnaires distributed to a sample of 225 procurement personnel across key public agencies in Edo State, selected through simple random sampling based on Yamane's (1967) formula. Data were analysed using descriptive statistics via SPSS 22.0. Findings revealed that while the e-GP system demonstrates moderate functionality—particularly in automating procurement stages and enhancing efficiency—implementation is constrained by inadequate digital infrastructure, funding gaps, limited staff capacity, and bureaucratic resistance. Despite these challenges, opportunities such as enhanced transparency, cost savings, and the potential for environmental sustainability were evident. The study concluded that a more structured and inclusive implementation framework is required, with strategic investments in infrastructure, human capital, and stakeholder engagement. The study therefore recommended continuous training, improved digital infrastructure, effective change management, supplier support, institutionalised monitoring mechanisms, increased budgetary allocations, robust legal frameworks, phased system implementation, public-private partnerships, and integration of sustainability criteria in procurement policies to enhance the implementation and maximisation of e-GP's potential for sustainable procurement in Edo State.

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INTRODUCTION

Sustainable procurement has increasingly become a cornerstone of public sector reform globally, driven by the urgency to balance economic growth with environmental stewardship and social equity. In Nigeria, this need is particularly pronounced given the challenges of economic instability, governance inefficiencies, and environmental degradation (Ogunsanya et al., 2022). Sustainable procurement—defined as the strategic integration of economic, environmental, and social considerations into procurement decisions (O'Brien, 2023)—has emerged as a transformative policy mechanism to promote responsible resource use and long-term value delivery in public procurement. Yet, despite legislative frameworks such as the Public Procurement Act of 2007, the Nigerian procurement landscape continues to grapple with endemic inefficiencies, limited transparency, and systemic corruption, with procurement fraud accounting for nearly 70% of all public sector corruption cases (Natsa, 2024; Abioro, 2021).

With public procurement constituting approximately 30% of Nigeria's Gross Domestic Product (Peoples Gazette, 2023) and almost 70% of capital investment (Bureau of Public Procurement, 2020), reforming procurement systems to align with sustainable development goals (SDGs)—particularly SDG 12 on responsible consumption and production—has become a policy imperative. Moreover, as Nigeria seeks to meet global sustainability targets, implementing effective and transparent procurement mechanisms is crucial for achieving economic efficiency, social inclusion, and environmental protection (Adebayo, Paul & Eyo-Udo, 2024; Manta et al., 2022).

E-government procurement (e-GP) systems have emerged as strategic enablers of sustainable procurement reform, offering digitised solutions that enhance transparency, reduce human error, and minimise opportunities for fraud (Hochstetter et al., 2023). These systems encompass digital processes such as e-tendering, e-sourcing, e-payment, e-invoicing, and e-cataloguing—each contributing to improved procurement performance and accountability (Mavidis & Folinas, 2022; Shahin, Balouei Jamkhaneh & Shahin, 2022). In Nigeria, digital initiatives such as the Government Integrated Financial Management Information System (GIFMIS) and the Integrated Payroll and Personnel Information System (IPPIS) illustrate the government's intent to digitise public procurement and fiscal management (Ibrahim, 2022; Abdullahi, 2023). However, while these digital frameworks demonstrate potential, the actual implementation of e-GP systems remains fragmented and fraught with structural, institutional, and technical challenges (Maina, 2023).

Specifically, states such as Edo are attempting to implement e-procurement systems as part of broader governance reforms. Nonetheless, several barriers persist—including poor ICT infrastructure, cybersecurity vulnerabilities, regulatory inconsistencies, and resistance to organisational change (Effa et al., 2023; Alonge, 2023). At the same time, emerging opportunities such as digital capacity-building, regulatory harmonisation, and enhanced stakeholder collaboration offer promising avenues for advancing sustainable procurement reforms through e-GP adoption.

Given the strategic importance of procurement in driving sustainable development and the increasing emphasis on digital governance, this study examines the challenges and opportunities associated with implementing e-government procurement systems in Edo State. This study seeks to evaluate the current state of e-GP implementation, identify systemic and operational barriers, and explore strategic opportunities for enhancing procurement sustainability.

STATEMENT OF THE RESEARCH PROBLEM

The implementation of e-government procurement (e-GP) systems has emerged as a global strategy for reforming public procurement, particularly in fostering transparency, efficiency, and accountability in line with sustainable development objectives (Mélon & Spruk, 2020). In Nigeria, where public procurement has historically been marred by inefficiency, corruption, and resource mismanagement, e-GP systems are increasingly recognised as instrumental for driving sustainable procurement reforms (Usman, 2022). Despite the policy interest and recent digitisation initiatives, the Nigerian public sector has yet to fully harness the transformative potential of e-GP systems due to persistent challenges, including poor technological infrastructure, limited technical expertise, resistance to change, and inconsistent policy implementation (Olatunji et al., 2021). Consequently, the promise of e-procurement as a tool for achieving sustainability in public procurement remains largely unfulfilled.

Existing studies have explored various dimensions of e-procurement implementation in Nigeria and other developing countries, focusing primarily on cost reduction, time efficiency, and operational improvements (Usman, 2022; Olatunji, Adeniyi & Jegede, 2021). Research in sectors such as oil and gas, construction, and telecommunications has highlighted both the opportunities and limitations of digital procurement tools such as e-ordering, e-tendering, and e-payment (Omoregbe, Olufolahan & Azage, 2022; Maina, 2023). However, much of this scholarship has concentrated on the private sector or isolated operational outcomes, with insufficient attention paid to the public sector context, particularly within sub-national governance frameworks. Furthermore, there remains a limited understanding of how e-GP systems can serve not merely as tools of efficiency, but as strategic mechanisms for sustainable procurement reform—integrating environmental, economic, and social dimensions within public procurement systems.

This research responds to this gap by investigating the implementation of e-government procurement systems in Edo State, Nigeria—a state that has embarked on various governance reforms but continues to face structural and institutional bottlenecks in procurement administration. While e-procurement platforms such as e-invoicing, e-sourcing, e-cataloguing, and e-payment hold potential for enhancing procurement sustainability, their application within the Edo State public sector remains underexplored. The specific challenges facing the adoption of these systems—ranging from infrastructural limitations to human capacity constraints—have not been systematically studied within the context of sustainable procurement reform. Additionally, the opportunities that such digital systems present for achieving sustainable procurement objectives remain poorly articulated in the existing literature.

Therefore, this study seeks to critically examine the challenges and opportunities in implementing e-government procurement systems as a strategic approach to sustainable procurement reform in Edo State. By doing so, the study aims to generate empirical insights and practical recommendations that can inform both policy and practice, while contributing to the broader discourse on digital governance and sustainability in public sector procurement.

OBJECTIVES OF THE STUDY

The overarching aim of this study is to examine the challenges and opportunities associated with implementing e-government procurement (e-GP) systems in support of sustainable procurement reforms using Edo State, Nigeria as a case study. Specifically, the study seeks to:

i. evaluate the current status of e-government procurement systems in Edo State;

ii. Identify the major challenges impeding the effective implementation of e-procurement systems;
iii. Assess the extent to which e-GP challenges influence sustainable procurement practices;
iv. Explore potential opportunities for enhancing e-GP adoption and advancing sustainable procurement reform, and,
v. offer evidence-based policy recommendations to strengthen e-GP implementation for sustainable procurement outcomes.

RESEARCH HYPOTHESES

The following null hypotheses will be tested in this study:
H_1: There is no significant relationship between the current state of e-government procurement systems and sustainable procurement reform in Edo State.
H_2: Challenges associated with e-procurement implementation do not significantly impact on sustainable procurement practices in Edo State.
H_3: Opportunities for enhancing e-procurement implementation do not significantly contribute to sustainable procurement outcomes in Edo State.

LITERATURE REVIEW

E-Government Procurement Systems

E-Government Procurement (e-GP) systems represent a significant shift in how governments manage procurement, using technology to improve efficiency, transparency, and accountability. Shakya (2023) defines e-GP as the use of ICT to automate processes such as tendering and contract management, reducing costs and enhancing transparency. Khorana et al. (2024) stress that e-GP standardizes procurement, improving accountability and reducing corruption. Moniruzzaman (2023) highlights e-GP's role in sustainable development by incorporating environmental and social factors into procurement decisions. Similarly, Mollik (2023) notes that e-GP fosters inclusivity, benefiting small and medium-sized enterprises.

However, Tassew (2024) argues that the effectiveness of e-GP systems depends on factors like regulatory frameworks, digital literacy, and infrastructure. These diverse perspectives underscore e-GP's multifaceted nature, not only improving operational efficiency but also promoting sustainability and inclusivity in governance.

Key components of e-GP systems include electronic tendering platforms that streamline contract submissions, evaluations, and awards, reducing corruption risks (Funuguru, 2023). Supplier registration systems ensure transparency by prequalifying vendors (Amakye, 2023), while e-catalogs standardize goods and services, allowing for more cost-effective decisions (Uluç, 2022). Contract management modules ensure compliance and prevent disputes (Mollik, 2023). Data analytics embedded in e-GP systems help identify inefficiencies and flag irregularities (Cocciolo et al., 2023). However, the success of these systems relies on robust digital infrastructure and institutional capacity, especially in developing countries like Nigeria (Bosio et al., 2023).

In Nigeria, e-GP systems hold significant potential for enhancing sustainable procurement by reducing environmental impacts, curbing corruption, and promoting equity. Studies show that e-GP can improve procurement efficiency by 20-30% and reduce project delays by 25% (Celestin et al., 2024). However, Nigeria's adoption of e-GP faces challenges such as limited digital literacy and inadequate infrastructure, which must be addressed to fully realize its potential for sustainable procurement (Afolabi et al., 2022; Olatunji et al., 2016).

Modules of E-Government Procurement Systems

E-Government Procurement (e-GP) systems have significantly transformed traditional procurement processes, promoting efficiency, transparency, and accountability. Key modules of e-GP include e-ordering, e-tendering, e-invoicing, e-sourcing, e-payment, and e-cataloguing, which collectively contribute to modernizing procurement activities.

E-Ordering

E-ordering is a post-award process that involves the electronic creation and management of purchase orders. This module enhances procurement efficiency by reducing administrative burdens and minimizing human errors, as noted by Demberere et al. (2023). Automated systems improve governance by offering real-time tracking, which enhances oversight and accountability. However, challenges arise in developing countries due to inadequate digital infrastructure and lack of technical skills, limiting the effectiveness of e-ordering systems (Maina, 2023). Cybersecurity risks and dependence on proprietary platforms further complicate e-ordering's implementation (Meng, 2022). Despite these issues, e-ordering remains essential for improving transparency and operational efficiency in procurement.

E-Tendering

E-tendering digitizes the competitive bidding process, enhancing transparency and efficiency. It automates tasks such as bid advertisement, submission, evaluation, and contract award, reducing corruption and bias in procurement decisions (Marumo, 2022). However, technical challenges, including user-friendliness and digital literacy, hinder the accessibility of e-tendering platforms, particularly for small suppliers (Wanjiku, 2022). Moreover, e-tendering systems are vulnerable to technical failures and potential

misuse by government officials (Hassija et al., 2020). Nevertheless, e-tendering fosters fairness and enhances the competitiveness of procurement processes when well-implemented.

E-Registration

E-registration involves the digital enrollment of suppliers, ensuring compliance with procurement regulations. It reduces paperwork and enhances transparency, thus promoting fair competition (Molepo & Jahed, 2022). This module is crucial for promoting sustainable procurement, enabling easier monitoring of supplier credentials and aligning vendor selection with sustainability standards (Singh & Chan, 2022). However, challenges such as low digital literacy and inadequate infrastructure hinder its full implementation, particularly in developing economies (Njwayo, 2023).

E-Evaluation

E-evaluation uses digital tools to assess supplier bids based on predefined criteria, enhancing objectivity and reducing bias. It supports sustainable procurement by evaluating suppliers on environmental, social, and governance (ESG) factors (Chan & Owusu, 2022). E-evaluation also improves transparency by providing a digital audit trail, reducing risks of corruption (Egwim et al., 2024). Despite its advantages, technical complexity and cybersecurity risks pose challenges to effective implementation (Gurgun et al., 2024).

E-Award

E-award systems automate the process of awarding contracts to successful bidders, ensuring compliance with procurement regulations. These systems reduce procurement cycle times and promote fairness by standardizing decision-making (Bryx, 2022). E-award systems also enhance sustainability by tracking supplier performance in line with environmental and ethical standards (Chahe, 2023). However, interoperability issues and resistance to change limit their effectiveness in some regions (Gurgun et al., 2024).

E-Contract Management

E-contract management involves the digital administration of procurement contracts, including monitoring, compliance tracking, and performance evaluation. It enhances accountability and reduces procurement fraud by automating contract tracking and ensuring adherence to sustainability clauses (Aziza et al., 2023). However, the effectiveness of e-contract management is dependent on system integration, data security, and the technical capabilities of procurement officials (Mwalukasa, 2024).

E-Invoicing

E-invoicing automates the invoice lifecycle, replacing traditional paper-based methods and enhancing financial transparency. It facilitates real-time monitoring, reduces errors, and ensures timely payments, as emphasized by Awan (2023). E-invoicing also strengthens accountability by providing a digital audit trail, aiding in fraud detection (Garba, 2024). However, limited digital infrastructure and resistance to change in developing countries pose significant challenges to its widespread adoption (Soliman, 2024).

E-Sourcing

E-sourcing involves using digital tools for supplier identification, bid solicitation, and proposal evaluation. It promotes competition, reduces transaction costs, and enhances transparency (Nicoletti & Nicoletti, 2020). This module democratizes access to public tenders, benefiting small and medium enterprises (SMEs) and reducing administrative burdens (Aboelazm, 2022). However, technical complexity, cybersecurity risks, and integration challenges hinder its effectiveness, particularly in developing economies (Mavidis & Folinas, 2022).

E-Payment

E-payment systems transform financial transactions in public procurement by replacing cash-based methods with digital platforms. These systems promote financial accountability by ensuring transparency and reducing payment delays (Chahe, 2023). E-payment systems also improve financial traceability, fostering trust among stakeholders (Tom et al., 2024). However, the adoption of e-payment is hindered by limited internet access and technical expertise in developing regions (Musa et al., 2024).

From the above, it can be noted that the modules of e-GP systems play a crucial role in modernizing procurement processes, enhancing transparency, and improving efficiency. Despite various challenges, including technical complexity, digital infrastructure deficits, and resistance to change, these systems have the potential to revolutionize public procurement by promoting fairness, reducing corruption, and fostering sustainable practices. Successful implementation requires addressing infrastructure gaps, providing training, and ensuring robust cybersecurity measures to fully realize the benefits of e-GP systems.

Current State of E-Government Procurement Systems in Nigeria

E-Government Procurement (e-GP) in Nigeria is grounded in the Public Procurement Act (PPA) of 2007, which established the Bureau of Public Procurement (BPP) as the regulatory authority overseeing public procurement. Key components of the system include the Nigeria Open Contracting Portal (NOCOPO), the Treasury Single Account (TSA), and e-registration platforms for supplier vetting. However, despite this framework, implementation has been uneven, with operational inefficiencies arising from limited digital literacy, inadequate infrastructure, and inconsistent policy enforcement (Abdullahi, 2023).

A major milestone was the Federal Government's pilot e-GP platform, supported by the World Bank, but it remains underutilized, lacking integration into broader public administration processes. Corruption is a persistent issue, with manual overrides and circumventions of system protocols undermining the system's potential to reduce human interference (Ifejika, 2020).

A significant challenge is the digital divide, especially in rural areas, where poor internet connectivity and power supply prevent effective participation in government procurement, favoring urban contractors (Makinde et al., 2024). Furthermore, limited digital literacy among procurement officers and civil servants hinders the adoption of e-GP systems, as many continue to rely on traditional, paper-based methods (Panya & Awuor, 2023).

Corruption also hampers e-GP effectiveness, with some public officials resisting automation to retain control over contract awards, perpetuating rent-seeking behaviours (Fagbadebo & Mbada, 2021). Loopholes in enforcement mechanisms and weak oversight further complicate efforts to ensure transparency and accountability (Yamusa et al., 2024). For e-GP to reach its full potential, Nigeria must address these infrastructural, capacity, and governance challenges through targeted reforms and sustained political will.

Sustainable Procurement

Sustainable procurement refers to acquiring goods and services in a manner that addresses environmental, economic, and social responsibilities. It emphasises resource efficiency, ethical sourcing, and long-term societal and ecological impacts (Alibašić, 2023; Schooner, 2024; O'Brien, 2023). Scholars agree that sustainable procurement aligns with Sustainable Development Goals (SDGs) through life-cycle thinking, stakeholder inclusion, and ethical practices (Etse et al., 2023; Martin-Ortega & Treviño-Lozano, 2023). Key elements of sustainable procurement include environmental sustainability—reducing carbon footprints and using eco-friendly materials (Schooner, 2024); social equity—promoting fair labour, ethical sourcing, and community development (Wright et al., 2024); and economic efficiency—balancing cost with life-cycle value (Celestin et al., 2024). It also involves supplier engagement, capacity building, and performance monitoring through audits and assessments (Talbot & Boiral, 2023).

In Nigeria, integrating sustainable procurement into e-Government Procurement (e-GP) systems could enhance transparency and efficiency (Egwim et al., 2024). Yet, adoption remains limited due to weak regulatory enforcement, corruption, and low awareness (Agu et al., 2024). Nevertheless, e-GP platforms can reduce environmental degradation, promote local content, and improve equity by supporting SMEs (Ogunnusi, 2023; Oniyangi & Ibrahim, 2024).

Sustainable procurement follows the Triple Bottom Line (TBL) approach: **Economic**: e-GP enhances competition, reduces costs, and improves public fund utilisation, though challenges like limited funding and skilled personnel remain (Haider, 2016; Tassew, 2024). **Social**: e-GP can ensure fairness, inclusivity, and transparency, supporting women-led businesses and local contractors (Ahmad, 2021; Ozor & Nyambane, 2020). **Environmental**: e-GP enables tracking of green practices, supplier prequalification, and circular economy adoption, yet low awareness and poor enforcement persist (Sabah, 2024; Mwanza & Manda, 2024). For Nigeria to fully harness these benefits, institutional capacity, stakeholder engagement, and policy enforcement must be strengthened.

Procurement Reform in Nigeria: Achievements and Challenges

Procurement reform refers to the transformation of procurement policies, structures, and practices to enhance efficiency, transparency, and value for money in public spending (Panya & Awuor, 2023). In developing countries, poorly managed procurement systems often foster corruption and inefficiency (Fazekas & Blum, 2021). Reform efforts aim to align with global standards through legal frameworks, institutional restructuring, capacity building, and digitisation. E-procurement has emerged as a central pillar of reform, enhancing transparency by minimising human interference and enabling real-time tracking. Evidence suggests that digital procurement can reduce costs by up to 20% and improve efficiency by 30% (OECD, 2019). Furthermore, contemporary reforms advocate for sustainability by promoting socially responsible and environmentally conscious procurement (Andhov et al., 2020).

In Nigeria, procurement reform became imperative due to widespread inefficiencies and corruption in the public procurement system, which accounts for about 70% of annual government expenditure (Bureau of Public Procurement, 2020). The Public Procurement Act (PPA) of 2007 was a landmark intervention, creating the Bureau of Public Procurement (BPP) to institutionalise accountability and competitive processes. Despite this, implementation remains weak. Political interference and capacity deficits persist, with studies revealing continued contract awards based on political connections (Ibidapo-Obe, 2020).

The adoption of e-procurement has been uneven, with limited penetration across government agencies (Usman, 2022). Manual systems remain dominant, increasing risks of delays and manipulation. Additionally, many procurement officers lack the technical skills to manage digital platforms effectively (Imoni et al., 2023). Compounding the problem is weak enforcement; despite procurement losses of up to $18 billion annually, few sanctions have been imposed (Egboboh, 2024). For reform to succeed, Nigeria must go beyond legislation by strengthening institutions, enhancing digital capabilities, and fostering a culture of accountability in public procurement.

Challenges Faced By Government in Implementing E-Procurement Reforms to Achieve Sustainable Procurement

E-procurement, which refers to the application of digital technologies for the acquisition of goods and services, plays a crucial role in realising sustainable procurement goals—especially in developing contexts such as Nigeria. Sustainable procurement incorporates environmental, social, and economic concerns into purchasing decisions to foster long-term value and development (Alibašić, 2023). Despite the evident potential of e-procurement to drive efficiency and transparency in public procurement, various structural, technological, financial, and behavioural challenges continue to hinder its successful implementation in Nigeria.

Inadequate Ict Infrastructure

A key impediment to e-procurement implementation is the country's underdeveloped technological infrastructure. Scholars such as Afolabi et al. (2022) and Yamusa et al. (2024) have pointed out that unreliable broadband connectivity, erratic power supply, and outdated ICT tools make it difficult for public institutions to effectively utilise e-procurement platforms. Public agencies often operate on systems that lack sufficient server capacity, integrated functionalities, and secure data storage. According to Lawan et al. (2020), unreliable internet access remains a widespread issue, with rural areas particularly disadvantaged (Fahm, 2023). Another challenge lies in the incompatibility between legacy systems used by government institutions and modern e-procurement solutions (Egwim et al., 2024). Many state-level platforms do not integrate seamlessly with federal systems, creating a disjointed procurement environment. To address these infrastructure constraints, there is a need for targeted investments in broadband expansion, ICT infrastructure, and system interoperability, ensuring consistency and accessibility across regions.

Lack of Capacity Building

The implementation of e-procurement requires personnel who are proficient in digital systems and procurement processes. Unfortunately, public procurement staff in Nigeria often lack the necessary technical competencies. As Egwim et al. (2024) highlight, skills gaps in electronic bidding, contract management, and procurement analytics lead to errors and non-compliance. The rapid pace of technological change compounds this problem, requiring ongoing training and upskilling. Furthermore, capacity constraints are not limited to technical staff. Senior government officials also frequently lack the strategic competencies to guide digital procurement reforms (Marei et al., 2021). This gap between strategic vision and operational capability poses a significant risk to sustainability. Addressing these deficiencies necessitates the institutionalisation of training programmes, certification schemes, and strategic collaborations with universities and professional bodies to develop a robust talent pipeline.

Resistance to Organisational Change

Resistance to change among key actors in the procurement system is another notable challenge. Traditional procurement processes are deeply ingrained within Nigerian public institutions. Many procurement officers, suppliers, and contractors are wary of moving away from manual systems due to familiarity and perceived job security risks (Okoro et al., 2023). According to Adjei-Bamfo et al. (2020), this resistance is common across sub-Saharan Africa, where manual methods are often preferred for their simplicity. Cultural preferences for in-person negotiations and informal contracting also inhibit the uptake of digital tools (Grant, 2024). In addition, SMEs—many of which are vital to public procurement—often struggle with the digital literacy needed to engage with e-platforms. A strategic approach involving awareness campaigns, participatory training sessions, and pilot projects is essential to demonstrating the benefits of digital procurement and easing the transition for all stakeholders.

Regulatory and Policy Constraints

Nigeria’s policy environment presents several barriers to the effective deployment of e-procurement systems. The legal and regulatory frameworks governing procurement are often outdated or ambiguous with respect to digital processes. For instance, the Public Procurement Act of 2007 does not explicitly address e-procurement, making it challenging for public institutions to align their digital practices with statutory requirements (Afolabi et al., 2022; Imoni et al., 2023). Moreover, overlapping responsibilities between federal, state, and local governments lead to inconsistencies in regulation and enforcement. These fragmented regulatory environments result in duplicative processes and inefficiencies. Bureaucratic delays also hinder timely approval and deployment of procurement innovations (Olatunji et al., 2016). To mitigate these issues, procurement laws need to be revised to reflect digital realities, and harmonised frameworks should be established to streamline policy implementation.

Corruption in Public Procurement

Despite the promise of increased transparency, e-procurement has not been immune to corruption. Malpractices such as bid rigging, kickbacks, and contract manipulation still occur, often facilitated by weak enforcement and the exploitation of system loopholes (Ifejika, 2024). Even with digital processes in place, dishonest actors can falsify documents, influence evaluations, or bypass standard protocols (Olasunkanmi & Ujene, 2020). Corruption diminishes public trust and discourages honest vendors from participating, thus reducing competition and value for money (Williams-Elegbe, 2018). Addressing this requires not only stricter enforcement mechanisms but also the integration of advanced technologies—such as blockchain—for transaction traceability.

Strengthening oversight bodies such as the Bureau of Public Procurement (BPP) and implementing transparent audit mechanisms are also vital to reinforcing accountability.

Financial Constraints

Implementing and maintaining e-procurement systems demands substantial financial investment. The costs associated with acquiring ICT infrastructure, developing platforms, and training personnel are often beyond the reach of many public institutions (Olatunji et al., 2021). As a result, many agencies are unable to scale their digital procurement capabilities. Operational costs—such as ongoing technical support, cybersecurity upgrades, and software maintenance—also strain limited public budgets. Yevu et al. (2022) note that inconsistent donor funding further limits the sustainability of such initiatives. It is imperative that dedicated budgetary allocations be made for digital procurement, alongside public-private partnerships and international support frameworks to ensure financial viability.

Limited Stakeholder Collaboration

The multi-stakeholder nature of procurement demands collaboration among various actors, including government agencies, private sector suppliers, and civil society. However, poor coordination and communication undermine efforts to scale up e-procurement adoption. Iroha et al. (2024) point out that fragmented priorities and siloed operations lead to delays and inefficiencies. There is also a lack of shared platforms for information exchange and best practice dissemination. Alonge (2023) stresses the importance of fostering partnerships between the public and private sectors to mobilise resources and expertise. Establishing collaborative structures such as joint task forces, e-procurement forums, and inter-agency committees can facilitate collective ownership and smoother implementation. These initiatives are critical for achieving the collective goal of sustainable procurement in Nigeria.

THEORETICAL FRAMEWORK

The implementation of e-government procurement systems aimed at promoting sustainable procurement practices in Edo State can be understood through the lens of several theoretical frameworks: Institutional Theory, the Technology Acceptance Model (TAM), the Resource-Based View (RBV), and the Diffusion of Innovation (DOI) Theory. Institutional Theory posits that external pressures—such as legal requirements, international benchmarks, and demands for transparency—influence governments to adopt digital contract management solutions (Scott, 2014). Such adoption is shaped by coercive, mimetic, and normative forces (DiMaggio & Powell, 1983), although challenges like institutional inertia and limited administrative capacity can impede progress (Brammer & Walker, 2016). TAM suggests that users are more inclined to embrace e-contracting platforms when they perceive them as beneficial and user-friendly (Davis, 1989). Transparency and operational efficiency tend to increase perceived usefulness, while ease of use is largely influenced by digital competence and how well the system integrates with existing processes (Venkatesh & Davis, 2000). Nonetheless, digital skill shortages and resistance to technological change may limit uptake (Dwivedi et al., 2017). From the RBV perspective, an organisation's ability to harness distinctive and valuable resources is critical to achieving a strategic edge (Wernerfelt, 1984; Barney, 1991). E-contract management platforms can serve as such strategic assets, offering efficiency and contributing to sustainable procurement goals (Mota & Filho, 2017). However, technical constraints, including IT infrastructure deficits and cybersecurity risks, need to be addressed to ensure effective use (Walker et al., 2015). The DOI Theory adds that the rate and extent of technology adoption are influenced by perceived advantages, compatibility with current practices, and stakeholder awareness (Rogers, 1962). Barriers such as limited digital exposure and resistance to innovation can slow progress (Gupta & Soni, 2017). When synthesised, these theories provide a robust framework for analysing the complexities of e-contract management adoption for sustainable procurement in Edo State.

EMPIRICAL REVIEW

Abubakar (2024) conducted an evaluation of e-procurement's role in enhancing supply chain performance in Nigeria, using secondary data. The study revealed improvements in operational efficiency, cost reduction, and transparency, although challenges such as poor infrastructure and cybersecurity threats were noted. In a related study, Omoregbe and Azage (2024) examined Nigeria's oil and gas sector and found that organisational competence and active supplier participation were essential for successful e-procurement implementation. Research in Kenya by Ngugi and Ndeto (2024) showed that e-procurement strengthens transparency and aids strategic decision-making within commercial state corporations. Likewise, Abdi and Barasa (2023) highlighted its positive impact on efficiency in local government procurement processes that favour marginalised populations. Eyo et al. (2023) confirmed that digital procurement practices have a beneficial effect on institutional performance in Nigerian tertiary institutions. Maina (2023) focused on Kenya's telecommunication industry and underscored e-procurement's contribution to sustainable practices through cost-efficiency and enhanced competitiveness, though barriers such as high initial costs and resistance to technological change were observed. In Tanzania, Marcilianus (2023) identified improvements in procurement speed and transparency within public agencies, especially through the implementation of e-invoicing which accelerated payment cycles. Singh and Chan (2022) connected e-

procurement adoption with sustainable supply chain practices among Malaysian businesses, demonstrating a clear link with environmentally conscious procurement. In Nigeria's oil and gas sector, Omoregbe et al. (2022) found that tools such as e-tendering and e-payment drive efficiency, whereas e-auctioning offered minimal gains. Usman (2022), examining small and medium enterprises (SMEs) in Nigeria, identified cost efficiency and operational improvements as benefits, though uptake was hindered by security issues and funding limitations. Marei (2022), investigating large firms in Jordan, emphasised that successful e-procurement deployment hinges on organisational preparedness and strong executive support. Ibrahim (2021) concluded that while e-procurement enhances efficiency in Nigeria's public sector, its full potential is yet to be realised due to infrastructure deficiencies and weak leadership engagement. In the construction industry, Olatunji et al. (2021) noted that cost savings remain the most significant advantage. Research by Waithaka and Kimani (2021) in Kenya's county governments also linked e-procurement with improved supply chain outcomes. Oppong (2020) assessed Ghanaian state enterprises and observed that although e-procurement systems are widely adopted, some manual practices still persist. Matano et al. (2020) found that e-sourcing and e-tendering significantly increased operational efficiency in Kenya's National Youth Service. In Tanzania, Shatta et al. (2020) pointed to legal structures and stakeholder attitudes as key enablers for adopting green procurement via digital platforms. Adjei-Bamfo (2017) highlighted e-procurement's value in promoting Sustainable Public Procurement (SPP) in Ghana, though he flagged legal and budgetary challenges as persistent constraints. Earlier, Osir (2016) noted that while e-procurement has boosted efficiency in Kenyan state firms, integration across departments remained limited. Finally, Makali (2015), exploring supermarkets in Nairobi, attributed the slow pace of e-procurement adoption to both financial and technological barriers.

METHODOLOGY

Research Design

This study adopted a positivist research philosophy, which emphasises empirical investigation and the use of objective, observable data to understand phenomena (Comte & Bridges, 2015; El Idrissi, 2023). This philosophical stance is particularly suitable for evaluating the challenges and opportunities in the implementation of e-government procurement (e-GP) systems as instruments of sustainable procurement reform in Edo State. By relying on quantifiable data, positivism enables the identification of statistically significant relationships between e-GP systems and procurement outcomes such as efficiency, transparency, environmental responsibility, and accountability.

A quantitative mono-method design was selected to facilitate structured data collection and statistical analysis (Saunders et al., 2023). This approach supports hypothesis testing and allows for the generalisation of findings across government ministries involved in procurement activities. Unlike interpretivist or constructivist approaches, which focus on subjective meaning or social construction of knowledge (Alharahsheh & Pius, 2020; Hickman, Neubert & Reich, 2020), the quantitative method enables systematic identification of both barriers (such as infrastructure gaps and skills deficiencies) and enablers (such as policy support and technological readiness) affecting e-GP implementation.

The study further employed a deductive approach, whereby hypotheses are formulated based on existing theoretical insights and tested using empirical data (Barroga et al., 2023). This aligns with the study's aim to empirically assess the challenges and opportunities associated with implementing e-government procurement systems for sustainable procurement reforms in Edo State.

Population, Sample of the Study and Sampling Technique

The study targets procurement personnel across key ministries and public institutions in Edo State involved in implementing or managing e-procurement platforms. These include the Ministry of Finance, Edo State Public Procurement Agency, Ministry of Infrastructure, and affiliated procurement units. The total population is 512, based on staff records from the relevant departments. Using Taro Yamane's (1967) formula at a 95% confidence level and 5% margin of error:

$$n = \frac{N}{1+ N(e)^2}$$

Where: n = Sample size
N = Population of the study given as 512
(e) = level of significance (0.05)

$$n = \frac{512}{1+ 512\ (0.05)^2}$$

n = 225

The resulting sample size is 225.

To promote objectivity and minimise selection bias, a simple random sampling technique is employed. This ensures that every eligible staff member has an equal probability of being selected, thereby enhancing the study's reliability and external validity.

Ethical Considerations and Data Collection Methods

The research adheres to strict ethical standards. Participants were briefed on the study's objectives, and informed consent was obtained. All responses were treated as confidential and anonymised to protect respondent identity. Participation was entirely voluntary, with the option to withdraw at any point. Primary data were collected via a structured questionnaire designed to capture respondents' perspectives on both the challenges (e.g., policy gaps, technical limitations, resistance to change) and opportunities (e.g., process efficiency, transparency gains, cost savings) associated with e-GP implementation in Edo State. The questionnaire comprised closed-ended questions measured using a five-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). This scale facilitates consistent data measurement and analysis. Secondary data—including policy reports, government documents, and academic literature—were also used to contextualise findings and support interpretation.

Operationalisation and Measurement of Variables

This study examined key variables to explore the challenges and opportunities in implementing e-Government Procurement (e-GP) systems for sustainable procurement reforms in Edo State. It assessed barriers such as technical limitations and institutional resistance, and enablers like policy support and digital literacy. The dependent variable, sustainable procurement reform, was measured through indicators including transparency, accountability, cost efficiency, and environmental sustainability. A five-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree) captured respondents' views, enabling consistent quantification and statistical analysis. This approach facilitated a deeper understanding of the conditions shaping e-GP implementation in Edo State's public procurement landscape.

RESEARCH INSTRUMENT

The primary instrument for data collection in this study was a structured questionnaire, carefully designed to capture comprehensive and relevant information from respondents. The questionnaire was organised into three main sections. Section A focused on gathering demographic information, including details such as the respondent's agency, professional role, and years of experience in public procurement. This section helped to contextualise the data and allowed for an understanding of how background variables might influence perceptions. Section B explored the challenges encountered in implementing e-GP systems, as well as the opportunities and perceived benefits that these digital tools present in advancing sustainable procurement reforms in Edo State. To ensure the instrument's effectiveness and alignment with the research objectives, the questionnaire underwent pre-testing and revision. Feedback from the pre-test phase was used to refine the wording of items, eliminate ambiguity, and improve overall clarity, thereby enhancing the reliability and validity of the responses collected.

Validity and Reliability of the Research Instrument

Content validity was ensured through expert review by experts and specialists in public procurement and e-governance. Their feedback helped refine the questionnaire to reflect context-specific realities in Edo State's procurement ecosystem. Reliability was established using Cronbach's alpha, which tests for internal consistency among questionnaire items. A minimum threshold of 0.70 was adopted, in line with recommendations for social science research (Tavakol & Dennick, 2011). This assures that the instrument reliably captures perceptions across different dimensions of e-GP implementation.

METHOD OF DATA ANALYSIS

To provide a clear overview of participants' responses, descriptive statistics—including means, standard deviations, and frequency distributions—were used to summarise the current status of e-Government Procurement (e-GP) system implementation and its perceived impact on sustainable procurement reforms. Overall, this analytical strategy enabled the identification of critical barriers and enabling conditions influencing the successful implementation of e-GP systems. Data collected from the respondents were analysed using SPSS Version 22.0.

Data Presentation, Analysis and Interpretation

This section outlines the empirical analysis derived from the responses gathered through field-based questionnaires. These instruments were administered to strategically selected public sector entities actively engaged in procurement functions, specifically including the Edo State Ministry of Finance, the Edo State Public Procurement Office, and the Ministry of Infrastructure. In total, 225 questionnaires were distributed, and 200 were successfully completed and returned. After a thorough review to ensure completeness and relevance, all 200 were deemed valid for analysis, reflecting a strong response rate of 88.9%. To interpret the data, descriptive statistics such as frequency distribution, percentage representation, and mean scores were employed. The outcomes are organised into tabular format, followed by explanatory narratives to offer insights into the findings.

Demographic Profile of Respondents

The demographic characteristics of the survey participants are presented below.

Table 1. Respondents' Demographic Characteristics

Socio-Demographic Characteristics	Category	Frequency (N)	Percentage (%)
Gender	Male	77	38.5
	Female	123	61.5
	Total	**200**	**100.0**
Marital Status	Single	38	19.0
	Married	138	69.0
	Divorced	19	9.5
	Widowed	5	2.5
	Total	**200**	**100.0**
Age	20years and below	3	1.5
	21-30years	90	45.0
	31-40years	88	44.0
	41years and above	19	9.5
	Total	**200**	**100.0**
Income Level of Respondents	100,000 and below	86	43.0
	100,001 to 200,000	85	42.5
	200,001 to 300,000	18	9.0
	300,001 and above	11	5.5
	Total	**200**	**100.0**
Years of Working Experience	0-5years	44	22.0
	6-10years	127	63.5
	11-15years	23	11.5
	16years and above	6	3.0
	Total	**200**	**100.0**
Procurement Role	Procurement Officer	65	32.5
	Tenders Board Member	92	46.0
	Technical Staff	43	21.5
	Total	**200**	**100.0**

Source: Researchers' Fieldwork (2025)

The data shows that the majority of respondents were female, accounting for 61.5% (123 out of 200), while males comprised 38.5% (77 respondents). In terms of marital status, most participants were married (69.0%), with 19.0% single, 9.5% divorced, and 2.5% widowed. Regarding age distribution, a large segment of the respondents fell within the 21–30 years (45.0%) and 31–40 years (44.0%) age brackets, suggesting that the workforce is predominantly youthful. Only 9.5% were aged over 40, while those 20 years and younger represented a marginal 1.5%.

With respect to income, 43.0% of participants reported earning ₦100,000 or less per month, while a similar proportion (42.5%) earned between ₦100,001 and ₦200,000. Those earning between ₦200,001 and ₦300,000 made up 9.0%, and the remaining 5.5% earned more than ₦300,000 monthly. These figures point to modest income levels among public sector procurement personnel.

In terms of professional experience, the majority (63.5%) had between six and ten years of service, while 22.0% had five years or less. A smaller proportion had between eleven and fifteen years (11.5%), and only 3.0% had worked for over sixteen years. This pattern indicates that most respondents are relatively early to mid-career professionals.

Regarding their roles, almost half of the respondents (46.0%) served on the Tenders Board, followed by 32.5% who were designated Procurement Officers. The remaining 21.5% were technical staff. This distribution underscores that the respondents predominantly occupy decision-making and oversight positions within the procurement ecosystem.

Current State of E-Government Procurement Systems

This section presents descriptive analysis of current state of e-government procurement systems using frequency count, percentage (%) and mean.

Table 2. Descriptive Analysis of Current State of E-Government Procurement Systems

S/N	CURRENT STATE OF E-GOVERNMENT PROCUREMENT SYSTEMS	Total Responses	%Response					Descriptive
			SA 5 f/(%)	A 4 f/(%)	U 3 f/(%)	D 2 f/(%)	SD 1 f/(%)	Mean (x)

1.	The existing electronic procurement platform in our entity is user-friendly and easy to navigate.	200 (100)	47 (23.5)	124 (62.0)	3 (1.5)	26 (13.0)	- (-)	3.96
2.	The procurement system effectively automates routine procurement tasks, reducing manual workload.	200 (100)	47 (23.5)	133 (66.5)	2 (1.0)	18 (9.0)	- (-)	4.05
3.	The e-procurement system in place ensures timeliness in our Procurement processes.	200 (100)	60 (30.0)	108 (54.0)	3 (1.5)	29 (14.5)	- (-)	4.00
4.	The current electronic procurement system ensures transparency in vendor selection and contract awards.	200 (100)	47 (23.5)	119 (59.5)	3 (1.5)	31 (15.5)	- (-)	3.91
5.	Adequate training has been provided to employees on the use of the electronic procurement system.	200 (100)	48 (24.0)	126 (63.0)	3 (1.5)	22 (11.0)	1 (.5)	3.99
	Average							**4.98**

Source: Field Survey (2025)

The analysis indicates a generally positive perception of the e-government procurement systems, with an overall mean score of 4.98, suggesting high effectiveness. The highest-rated aspect is the automation of routine procurement tasks (Mean = 4.05), highlighting its role in reducing manual workload. The system also ensures timeliness in procurement processes (Mean = 4.00), enhancing efficiency. User-friendliness received a mean score of 3.96, indicating that while navigation is relatively easy, some improvements may be needed. Transparency in vendor selection and contract awards scored 3.91, suggesting a fair level of openness but with room for enhancement. Adequate training on system usage (Mean = 3.99) further reinforces the system's effectiveness. Overall, the e-procurement system is functional and widely accepted, though minor challenges persist in user experience and transparency.

Sustainable Procurement Reform

This section presents the analysis of sustainable procurement by the procurement agencies covered in Edo State using frequency count, simple percentage, and mean values.

Table 3. Descriptive Analysis of Sustainable Procurement

S/N	SUSTAINABLE PROCUREMENT	Total Responses	%Response					Descriptive
			SA 5 f/(%)	A 4 f/(%)	U 3 f/(%)	D 2 f/(%)	SD 1 f/(%)	Mean (x)
6.	The procurement processes in our organization emphasize environmental sustainability.	200 (100)	26 (13.0)	148 (74.0)	2 (1.0)	24 (12.0)	- (-)	3.88
7.	Ethical standards are consistently upheld in procurement decisions within our department.	200 (100)	39 (19.5)	144 (72.0)	- (-)	17 (8.5)	- (-)	4.03
8.	Procurement policies in our entity encourage the use of local suppliers to promote economic development.	200 (100)	50 (25.0)	125 (62.5)	5 (2.5)	19 (9.5)	1 (0.5)	4.02
9.	Our procurement practices actively reduce waste and promote resource efficiency.	200 (100)	19 (9.5)	142 (71.0)	5 (2.5)	34 (17.0)	- (-)	3.73
10.	Vendor selection processes prioritize suppliers who adhere to sustainable practices.	200 (100)	34 (17.0)	138 (69.0)	3 (1.5)	24 (12.0)	1 (.5)	3.90
	Average							**3.91**

Source: Field Survey (2025)

The findings reveal a strong commitment to sustainable procurement among the procurement agencies in Edo State, with an overall mean score of 3.91, indicating general agreement with sustainability principles. The highest-rated item, ethical standards in procurement decisions (Mean = 4.03), suggests that integrity is a priority. Procurement policies promoting local suppliers also scored highly (Mean = 4.02), indicating efforts to enhance economic development. Vendor selection based on sustainable practices (Mean = 3.90) and emphasis on environmental sustainability in procurement processes (Mean = 3.88) further reinforce the agencies' commitment to sustainability. However, waste reduction and resource efficiency (Mean = 3.73) received the lowest rating, suggesting potential gaps in implementation. Overall, the results highlight a positive orientation toward sustainable procurement, with room for improvement in waste management strategies.

Descriptive Analysis of Obstacles that the Edo State Government face in implementing e-procurement strategies to attain sustainable procurement

This section presents descriptive analysis of obstacles that the Edo State government face in implementing e-procurement strategies to attain sustainable procurement using frequency count, percentage (%) and mean.

Table 4. Descriptive Analysis of Obstacles that the Edo State government face in implementing e-procurement strategies to attain sustainable procurement

S/N	OBSTACLES	Total Responses	%Response					Descriptive
			SA 5 f/(%)	A 4 f/(%)	U 3 f/(%)	D 2 f/(%)	SD 1 f/(%)	Mean (x)
11.	The lack of adequate funding negatively affects the successful implementation of e-procurement initiatives.	200 (100)	42 (21.0)	132 (66.0)	5 (2.5)	18 (9.0)	3 (1.5)	3.96
12.	Insufficient technological infrastructure hinders the efficiency of the e-procurement system in Edo State.	200 (100)	50 (25.0)	119 (58.5)	2 (1.0)	28 (14.0)	1 (.5)	3.95
13.	Limited training and technical knowledge among employees obstruct the effective use of e-procurement tools.	200 (100)	48 (24.0)	114 (57.0)	1 (.5)	37 (18.5)	- (-)	3.87
14.	Resistance to change by government employees slows down the adoption of e-procurement strategies.	200 (100)	59 (29.5)	96 (48.0)	2 (1.0)	43 (21.5)	- (-)	3.86
15.	Bureaucratic red tape within government parastatals impedes the smooth operation of e-procurement systems.	200 (100)	50 (25.0)	119 (59.5)	4 (2.0)	27 (13.6)	- (-)	3.96
	Average							**3.92**

Source: SPSS output, Version 22 – Field Survey (2025)

The results indicate significant challenges in implementing e-procurement strategies in Edo State, with an overall mean score of 3.92, reflecting widespread agreement on existing barriers. The most critical issues include lack of adequate funding (Mean = 3.96) and bureaucratic red tape (Mean = 3.96), both acknowledged by 87.0% and 84.5% of respondents, respectively, as major impediments to smooth implementation. Insufficient technological infrastructure (Mean = 3.95) was also a concern for 83.5%, highlighting gaps in digital capacity. Limited employee training and technical knowledge (Mean = 3.87) was cited by 81.0%, showing the need for capacity-building programs. Additionally, resistance to change among government employees (Mean = 3.86) was identified by 77.5%, indicating cultural and organizational challenges. Overall, the findings suggest that financial constraints, bureaucratic inefficiencies, and inadequate infrastructure are the primary barriers to effective e-procurement adoption in Edo State.

Table 5. Mean Ranking of Obstacles to E-Procurement Implementation

S/N	Obstacles	Mean ($\bar{x}$)	Rank
16.	Lack of adequate funding	3.96	1st
17.	Bureaucratic red tape	3.96	1st
18.	Insufficient technological infrastructure	3.95	3rd
19.	Limited training and technical knowledge	3.87	4th
20	Resistance to change	3.86	5th
Average Mean	**3.92**		

Source: Author's Compilation (2025)

The ranking highlights lack of adequate funding and bureaucratic red tape as the most significant obstacles (Mean = 3.96), indicating that financial limitations and administrative inefficiencies are the primary barriers to successful e-procurement adoption in Edo State. Insufficient technological infrastructure follows closely (Mean = 3.95), emphasizing the need for improved digital infrastructure. Limited employee training (Mean = 3.87) and resistance to change (Mean = 3.86) rank lower but remain critical, suggesting that human capacity development and organizational reforms are necessary for smoother implementation. Overall, addressing financial, technological, and administrative constraints will be essential to optimizing e-procurement processes in the state.

DISCUSSION OF FINDINGS

The findings suggest that the e-government procurement (e-GP) system in Edo State is moderately effective, with key components such as e-registration, e-evaluation, and e-award playing significant roles. However, gaps in infrastructure, technical expertise, and system interoperability hinder full optimization. This aligns with Samani (2021), who emphasizes that successful e-GP implementation requires robust digital infrastructure, efficient integration of procurement modules, and capacity-building for procurement officers. Studies by Hübl and Šepeľová (2022) also highlight that in developing economies, digital procurement systems often face setbacks due to resistance to change and inadequate funding. Edo State's experience reflects these challenges, as the study identified bureaucratic delays and inconsistent adoption across government agencies. This suggests that while progress has been made, a more structured implementation framework is needed, particularly in streamlining processes such as e-ordering and e-invoicing (Demberere et al., 2023).

The study identified key challenges, including inadequate funding, poor digital infrastructure, limited training, bureaucratic inefficiencies, and corruption, which hinder effective e-procurement adoption in Edo State. These findings align with research by Yamusa et al. (2024), who emphasize that weak ICT infrastructure and financial constraints are major barriers to e-procurement implementation in developing economies. Additionally, Lawan et al. (2020) highlight that limited technical capacity among procurement officers often results in inefficient system utilization. Corruption remains a significant obstacle, with Ifejika (2024) noting that manual overrides and system manipulation undermine the transparency benefits of e-procurement. Addressing these challenges requires targeted investments in infrastructure, enhanced regulatory enforcement, and stakeholder engagement to build trust in digital procurement processes (Olatunji et al., 2021). The findings suggest that for Edo State to fully realize the benefits of e-procurement, a multi-stakeholder approach, including government reforms and private-sector collaboration, is essential.

CONCLUSION AND RECOMMENDATIONS

Conclusion

The study explored the current state, sustainability efforts, and obstacles associated with e-government procurement (e-GP) systems in Edo State, Nigeria. Findings indicate that while the e-GP system is generally functional and positively perceived—particularly in areas of automation, user-friendliness, and procurement efficiency—its full potential however remains hindered by several systemic challenges. These include inadequate funding, bureaucratic inefficiencies, insufficient technological infrastructure, limited training, and resistance to change among public sector employees.

Moreover, while there is a clear orientation toward sustainable procurement practices—such as environmental consideration, ethical procurement, and support for local suppliers—waste reduction and resource efficiency remain underemphasised. The persistent obstacles to e-GP implementation reflect broader governance and administrative limitations, consistent with literature on developing economies. Overcoming these challenges will require both institutional reforms and strategic investments. Therefore, an integrated and multi-stakeholder approach is essential to fully optimise the e-procurement system for sustainable procurement reforms in Edo State.

Recommendations for Practice

1. The Edo State government should institute continuous training programmes for procurement staff to deepen their technical expertise and foster greater system adoption and usage efficiency.
2. Investments in digital infrastructure should be prioritised, especially in ensuring reliable internet access and the seamless integration of e-procurement modules such as e-ordering and e-invoicing.
3. Change management initiatives, including employee sensitisation and involvement in procurement digitalisation processes, should be strengthened to overcome resistance and promote ownership.
4. Suppliers, particularly local vendors, should receive guidance and support on using e-procurement platforms to ensure inclusive and sustainable participation.
5. Internal monitoring and evaluation mechanisms should be institutionalised to track the effectiveness and sustainability outcomes of e-procurement initiatives.

Recommendations for Policy Makers

1. The Edo State government should be earmark adequate funding specifically for e-GP system upgrades, staff training, and technical support services to address current financial limitations.
2. A robust legal and policy framework should be instituted to enforce compliance, reduce bureaucratic red tape, and ensure transparency and accountability across procurement processes.
3. A harmonised and strategic roadmap should be developed for the phased implementation of e-GP systems across all government ministries, departments, and agencies.
4. Policy makers should foster collaborations with private-sector actors to leverage expertise, innovation, and funding necessary for advancing digital procurement capabilities.
5. Policy documents should explicitly integrate environmental and social sustainability criteria, such as waste reduction, ethical sourcing, and support for SMEs, as standard benchmarks for vendor evaluation and contract award.

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