INFLUENCE OF E-TENDERING PRACTICES ON PROCUREMENT PERFORMANCE OF THE KENYA NATIONAL HIGHWAYS AUTHORITY

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A RESEARCH PROJECT SUBMITTED TO THE SCHOOL OF MANAGEMENT AND LEADERSHIP IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF BACHELOR OF MANAGEMENT AND LEADERSHIP OF THE MANAGEMENT UNIVERSITY OF AFRICA

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DECLARATION

This research project is my original work and has not been presented for a degree in any other University

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This research project has been submitted for examination with my approval as University Supervisor

Signature…… **Date ……...**

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DEDICATION

This project is dedicated to my wonderful husband, Fredrick Obiero, whose unwavering love and support are the pillars of my strength. To my beautiful daughters, Felicia Nyaboke and Freshiah Kemunto, whose joy and inspiration light up my world, to my amazing parents, Elijah and Joyce, for their endless love, wisdom, and guidance and to my dear sister, Nancy Mokeira, and my brothers, Clive Obare and Bob Kevin, for their constant encouragement and companionship. Your love and support have made this journey possible, and I am forever grateful.

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ABSTRACT

This study aimed at to establishing the influence of E-Tendering practices on procurement performance of the Kenya National Highways Authority. The study specific objectives were to determine the effect of automated bid evaluation, electronic contract award, online tender invitation and electronic supplier prequalification on procurement performance of the Kenya National Highways Authority. This study will benefit the management of the Kenya National Highways Authority, Government policymakers in Kenya and suppliers and contractors. The target population was 55 employees working within the supply chain department. The use of census as a study sampling method was adopted. The questionnaires were adopted as tool for collecting data. The use of quantitative analysis was adopted and the presentation of the final collected data was through tables. The finding of this study indicated that automated bid evaluation, electronic contract award, online tender invitation and electronic supplier prequalification on procurement performance. In conclusion, by minimizing manual labor and optimizing resource usage, automated bid evaluation reduces costs associated with the procurement process. Procurement staff can focus on strategic tasks rather than the time-consuming process of manually evaluating each bid. E-contracts are stored digitally, allowing for easy retrieval and organization of all contract-related documents. This digital record-keeping improves compliance by ensuring that all terms and conditions are readily accessible, which is important for ongoing contract management, performance monitoring, and audits. Online tender invitations reduce the administrative burden associated with traditional methods, such as printing, mailing, or physically collecting bids. The system automates many aspects of the tendering process, saving time and reducing the costs of paper-based logistics. Digital platforms for supplier prequalification provide rich data analytics and reporting tools, which help procurement teams track supplier performance over time. This data-driven approach allows organizations to identify top-performing suppliers, evaluate trends, and make informed decisions when sourcing goods and services. As a result, organizations can optimize their supply chain strategy and improve supplier relationships. The study recommends that, while automated bid evaluation is highly efficient, there should be human oversight for complex bids that require nuanced judgment. Procurement managers should have the ability to review and override automated decisions when necessary to ensure that the final choice aligns with the organization's strategic goals and priorities. To maximize the benefits of electronic contract award systems, procurement teams, legal departments, and other relevant stakeholders should be properly trained on how to use these systems. This ensures smooth adoption and reduces errors or delays in the contract-awarding process. The organization should regularly monitor how suppliers interact with the online tendering platform, and collect feedback to improve its functionality. Addressing concerns, such as difficult submission processes or technical glitches, can improve the overall experience for suppliers and enhance the effectiveness of the platform. Beyond initial prequalification, organizations should use data analytics to continuously assess supplier performance based on key metrics, such as delivery time, quality of goods/services, and compliance with contract terms. This helps ensure that suppliers who initially passed prequalification continue to meet the organization's needs.

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LIST OF ABBREVIATIONS

JKIA	Jomo Kenyatta International Airport
MUA	Management University of Africa
SMEs	Small and medium-sized enterprises
TAM	Technology Acceptance Model

OPERATIONAL DEFINITION OF TERMS

Automated Bid Evaluation	This refers to the use of software or electronic systems to assess and evaluate the bids submitted by suppliers or contractors during a tendering process. This process automates the calculation, comparison, and ranking of the bids based on predefined criteria.
Electronic Contract Award	This is the process of awarding a contract to a winning bidder through an online or digital platform. Once a supplier or contractor has been selected based on the tendering or bidding process, the contract is issued electronically, often in form of an email or digital document.
Electronic Supplier Prequalification	This is the use of digital systems to assess and verify the qualifications of suppliers or contractors before they can participate in a tendering process. It involves gathering relevant information, such as financial stability, experience, certifications, and compliance with regulations, and storing this information in an electronic format.
E-Tendering	The use of electronic platforms or systems to manage and execute the entire tendering process. It involves submission, evaluation and awarding of tenders for procurement contracts using digital tools rather than paper-based methods.
Online Tender Invitation	This is the process of publicly inviting suppliers or contractors to submit bids for a contract via an electronic or digital platform.

CHAPTER ONE

INTRODUCTION

1.0 Introduction

This introduction chapter consists of the background of the study, statement of the problem, objective of the study, research questions, significance of the study, scope of the study and the chapter summary.

1.1 Background to the Study

E-tendering has gained significant attention across the world as an innovative solution to streamline procurement processes, reduce corruption, and increase transparency and accountability. Germany has been proactive in adopting e-tendering systems, particularly in the public sector, to enhance transparency and procurement efficiency. Zimmermann, Engel, and Beyers (2018) conducted a study on the impact of e-tendering on procurement performance in German municipalities. The findings indicated that the adoption of e-tendering improved transparency and competition, leading to better supplier engagement and cost savings. The structured nature of e-tendering platforms made the process more accountable, reducing cases of bid-rigging and promoting fair competition among bidders. However, the study also highlighted challenges, such as the technical complexity of e-tendering systems, which limited the participation of smaller suppliers unfamiliar with digital platforms.

In India, the public sector has embraced e-tendering to address inefficiencies in traditional procurement methods. Gupta and Chatterjee (2020) examined the effect of e-tendering on procurement performance in India's public institutions, revealing that the implementation of e-tendering led to substantial improvements in transparency and procurement speed. The study found that e-tendering systems minimized paperwork and reduced procurement lead times, allowing suppliers to access bidding opportunities remotely, thereby encouraging greater participation. However, the study noted the challenge of digital illiteracy among smaller suppliers and the need for more robust training to maximize the benefits of e-tendering.

E-tendering has been introduced to address inefficiencies and corruption in the public procurement process in Ghana. Asare and Osei-Tutu (2019) investigated the impact of e-tendering on procurement performance in selected public institutions in Ghana. Their study revealed that e-tendering significantly improved the transparency of procurement processes, resulting in reduced opportunities for corruption. The study also found that e-tendering increased competition among suppliers, as the system made it easier for new suppliers to participate in bidding processes. However, challenges such as inadequate ICT infrastructure and limited technical skills among procurement personnel were identified as barriers to the full realization of the benefits of e-tendering.

South Africa has made strides in adopting e-tendering systems to enhance procurement performance, particularly in the public sector. Mofokeng and Luke (2018) conducted a study on the role of e-tendering in improving procurement performance in South African municipalities. The findings indicated that e-tendering contributed to increased procurement transparency, reduced instances of bid manipulation, and enhanced the efficiency of procurement processes. The study also noted that e-tendering led to cost savings by reducing the time spent on manual tendering procedures. Despite these benefits, challenges such as the digital divide and limited access to the internet in rural areas hindered the full adoption of e-tendering systems.

Tanzania has adopted e-tendering to improve the efficiency and transparency of public procurement processes. Nduta and Nkinga (2021) examined the effects of e-tendering on procurement performance in Tanzania's public sector. Their study found that e-tendering practices enhanced transparency by providing a digital audit trail for procurement transactions, which reduced opportunities for fraud and corruption. Additionally, the study highlighted that e-tendering reduced procurement costs by streamlining the procurement process and minimizing human errors. However, the study identified challenges such as inadequate infrastructure and limited training of procurement personnel, which affected the optimal use of e-tendering systems.

Kenya has been a leading adopter of e-tendering in East Africa, particularly in the public sector. Mutuku and Njeru (2022) studied the impact of e-tendering on procurement

performance in Kenyan public institutions, using Nairobi County as a case study. The research revealed that e-tendering led to improved transparency, as suppliers were able to submit bids electronically, and the system provided a clear audit trail for every transaction. The study also found that e-tendering reduced the procurement cycle time and minimized the opportunities for collusion and corruption. However, challenges such as system downtimes, data security concerns, and inadequate supplier training were identified as obstacles to achieving optimal procurement performance.

1.1.1 Automated Bid Evaluation

Automated bid evaluation significantly impacts procurement performance by improving the efficiency and transparency of the evaluation process. By using automated systems, organizations can quickly assess bids based on predefined criteria, which minimizes human error and reduces the time spent on manual evaluations. This automation ensures that the process is more objective, as the evaluation algorithm strictly adheres to the established rules and parameters, thereby mitigating potential biases. Research has shown that automated bid evaluations lead to quicker decision-making and allow procurement professionals to focus on strategic aspects of procurement, such as supplier relationships and contract negotiations, rather than spending excessive time on technical evaluations (Abe, 2019). This improved efficiency not only reduces administrative costs but also enhances overall procurement cycle times, ultimately leading to faster delivery of goods and services.

On the other hand, automated bid evaluation may present challenges if not implemented carefully. For instance, while it promotes efficiency, it may overlook critical nuances of complex bids, such as innovation or value-added services that go beyond the quantitative criteria programmed into the system. Additionally, a heavy reliance on automation could lead to concerns regarding the adaptability of the system to evolving market conditions or bidder behavior (Wright et al., 2020). Therefore, even while there are definite benefits to automating bid evaluation, it is imperative that enterprises find a balance between automation and human monitoring, especially where subjective judgment is required.

1.1.2 Electronic Contract Award

The introduction of electronic contract awards has transformed procurement performance by streamlining the contract award process and ensuring greater transparency. Electronic systems allow for the seamless transmission of contract awards, which not only accelerates the process but also increases the accessibility of information for all stakeholders involved. This transparency helps reduce instances of corruption or favoritism, as all details related to the award process are easily accessible to auditors and regulatory bodies (Aitken & Huxley, 2018). Furthermore, the use of digital platforms facilitates better record-keeping and enables easier compliance with regulatory standards, ensuring that all processes are documented for future audits and scrutiny. The increase in transparency has led to higher levels of accountability, fostering trust among suppliers, and in turn, improving supplier relations and competition.

The reliance on electronic contract awards also brings challenges in terms of cyber security and data privacy. The use of digital platforms to announce and manage contract awards makes the procurement process vulnerable to cyber threats, such as hacking or unauthorized access to sensitive information. This risk necessitates the implementation of strong security measures and regular audits to safeguard the integrity of the system (Buvik et al., 2021). Despite these challenges, the advantages of electronic contract award systems in improving procurement performance are undeniable, particularly in terms of speeding up the process and enhancing transparency.

1.13 Online Tender Invitation

The practice of issuing tenders online has led to significant improvements in procurement performance, particularly in terms of cost savings and market reach. Online tender invitations open up the procurement process to a broader pool of suppliers, allowing for increased competition and potentially better pricing. Additionally, the digital nature of online tendering facilitates easy access to tender documents and bid submission, which reduces delays and administrative costs associated with paper-based tenders (Anastasopoulos et al., 2020). The increased competition from a wider range of suppliers can lead to more competitive pricing, better-quality goods, and services, as well as improved innovation in some cases. The

efficiency of online systems also helps reduce the environmental impact of paper-based tendering processes.

While the benefits of online tendering are considerable, there are challenges related to ensuring accessibility and inclusivity for all potential suppliers. Small and medium-sized enterprises might face difficulties in accessing online systems if they lack the technical capacity or resources to navigate digital platforms effectively. Moreover, the digital divide in some regions can limit the reach of online tender invitations, reducing the pool of potential suppliers in certain markets (Pereira et al., 2021). As such, efforts to implement training or provide technical support for SMEs and suppliers in underdeveloped regions are essential to fully realize the potential of online tendering in improving procurement performance.

1.1.4 Electronic Supplier Prequalification

Electronic supplier prequalification has revolutionized the way procurement teams assess the capabilities and reliability of potential suppliers. The digitization of the prequalification process enables procurement professionals to quickly evaluate and verify suppliers based on a set of predefined criteria, such as financial stability, compliance with industry standards, and past performance. This digital approach improves the accuracy and consistency of supplier assessments, ensuring that only qualified suppliers are considered for contracts. It also enhances the speed of the prequalification process, reducing the time needed to identify and approve suppliers (Wang et al., 2020). Additionally, electronic systems provide greater visibility into a supplier's track record, making it easier to manage supplier risk and ensure compliance with contractual obligations.

Despite the advantages, electronic supplier prequalification can also lead to challenges, particularly if the systems are not well-integrated or updated. Inaccurate or incomplete data could affect the quality of supplier assessments, and if suppliers face technical difficulties in submitting their prequalification information, it could result in delays or exclusion from the process. Furthermore, reliance on electronic prequalification could lead to the exclusion of smaller suppliers who may not have access to sophisticated digital systems or lack the resources to meet the stringent requirements of online prequalification platforms (Grönroos et al., 2021). To address these issues, procurement organizations must ensure that their

electronic prequalification systems are inclusive, transparent, and regularly updated to capture the full range of supplier capabilities.

1.2 Statement of the Problem

The adoption of e-tendering practices is increasingly being recognized as a strategic approach to improving procurement performance. Despite its potential, many organizations still face challenges in fully harnessing the benefits of e-tendering. Studies have shown that e-tendering can enhance transparency, reduce procurement cycle times, and promote supplier competition (Gupta & Chatterjee, 2020). However, the effectiveness of these practices is not uniform across regions and sectors, and certain barriers such as technological limitations, resistance to change, and inadequate training of procurement personnel continue to impede its success (Zimmermann, Engel, & Beyers, 2018).

The Kenya National Highway Authority, as a key player in the country's infrastructure development, has adopted e-tendering practices in its procurement processes to enhance efficiency, transparency, and accountability. However, despite the potential benefits of e-tendering, the Authority continues to face challenges that affect procurement performance. Studies suggest that while e-tendering can reduce procurement cycle times and promote competition, organizations often struggle with issues such as system inefficiencies, supplier reluctance to adopt digital platforms, and inadequate information communication technology infrastructure (Mutuku & Njeru, 2022). In the case of Kenya National Highway Authority, these challenges have slowed down the full realization of the advantages associated with e-tendering practices.

Corruption and lack of transparency have historically been concerns in public procurement in Kenya, including within Kenya National Highway Authority. Although e-tendering has been implemented to curb such issues, it has not fully eliminated them. Asare and Osei-Tutu (2019) found that e-tendering systems are susceptible to manipulation if not properly managed, highlighting the need for robust monitoring and evaluation mechanisms. In the context of the Kenya National Highways Authority, the effectiveness of e-tendering in reducing corrupt practices remains an area of concern, as issues such as bid-rigging and favoritism may persist even with the use of electronic systems.

The limited capacity of suppliers to effectively engage with e-tendering platforms presents a significant challenge for the Kenya National Highways Authority. Nduta and Nkinga (2021) noted that supplier training and digital literacy are critical factors for the success of e-tendering practices. In the Kenya National Highways Authority's case, many suppliers, particularly SMEs, struggle with the technical demands of e-tendering systems, which affects their participation in procurement processes. Consequently, the intended goals of e-tendering, such as increasing competition and improving procurement performance are not fully realized. Addressing these challenges requires further research and targeted interventions to enhance effectiveness of e-tendering at the Kenya National Highways Authority (KeNHA).

1.3 Objectives of the Study

1.3.1 General Objective

To establish the influence of E-Tendering practices on procurement performance of the Kenya National Highways Authority (KeNHA)

1.3.2 Specific Objectives

i. To determine the effect of automated bid evaluation on procurement performance of the KeNHA
ii. To evaluate the effect of electronic contract award on procurement performance of the KeNHA
iii. To establish the effect of online tender invitation on procurement performance of the KeNHA
iv. To determine the effect of electronic supplier prequalification on procurement performance of the KeNHA

1.4 Research Questions

i. How does automated bid evaluation affect procurement performance of the KeNHA?
ii. To what extent does electronic contract award affect procurement performance of the KeNHA?
iii. To what extent does online tender invitation affect procurement performance of the KeNHA?

iv. What is the effect of electronic supplier prequalification on procurement performance of the KeNHA?

1.5 Significance of the Study

The KeNHA, as the primary focus of the study, will benefit directly from insights into how e-tendering practices impact its procurement performance. The study will provide the Kenya National Highways Authority with a detailed analysis of the challenges and opportunities associated with its e-tendering system. This will enable the Authority to identify areas of improvement, such as enhancing supplier engagement, addressing system inefficiencies, and mitigating risks associated with corruption. By leveraging these findings, the KeNHA can optimize its e-tendering processes to improve efficiency, transparency, and value for money in its procurement operations.

Suppliers and contractors who participate in the KeNHA procurement processes will benefit from the study as it will highlight areas where supplier involvement can be improved. The study may reveal obstacles that hinder supplier participation, such as technical challenges or limited access to e-tendering platforms. Understanding these barriers will allow suppliers to advocate for more inclusive and user-friendly e-tendering systems, ultimately enhancing their ability to compete fairly for contracts. Additionally, the study may encourage the Kenya National Highways Authority to invest in supplier training and capacity-building initiatives, enabling suppliers to better engage with e-tendering systems.

Government policymakers in Kenya, particularly those involved in public procurement and infrastructure development will benefit from the study's findings. The research will provide valuable evidence on the effectiveness of e-tendering in improving procurement performance within a major public authority like the Kenya National Highways Authority. Policymakers can use these insights to inform future decisions on the adoption and enhancement of e-tendering systems across other government agencies. The study could offer recommendations for regulatory reforms to strengthen e-tendering practices, promote transparency, and reduce corruption in public procurement processes.

1.6 Scope of the Study

This study was conducted to establish the influence of E-Tendering practices on procurement performance of the KeNHA head office is located at Barabara Plaza, Block A & C, Jomo Kenyatta International Airport (JKIA), Nairobi, Kenya. The target population was 55 employees from supply chain department. This study took a period of three months from January 2025 to May 2025 to be completed.

1.7 Chapter Summary

The background and summary of this research project are given in this chapter. It includes the study's background, which describes how the earlier researchers influenced the study's central thesis. Included is the problem statement, which describes the purpose of this investigation. This chapter's goals serve as the foundation for its objectives and research questions. The chapter concludes with the extent of the inquiry, and the study's relevance aids in elucidating the study participants.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

The theoretical and empirical literature reviews, research gaps, conceptual framework, operationalization of variables, and chapter summary are all included in this chapter.

2.1 Theoretical Literature Review

A theoretical literature review is a thorough examination and synthesis of the theories, concepts, and frameworks that have already been developed in relation to a particular research topic (Silverman, 2016). The objective is to offer a thorough comprehension of the theoretical underpinnings of the topic by analyzing pertinent scholarly publications, models, and viewpoints. This review outlines significant theories and concepts, discusses their development, and notes gaps or discrepancies in the literature. It serves as a framework for framing the research challenge, guiding the formation of hypotheses, and justifying the study approach. It positions the study inside pre-existing theoretical frameworks, guaranteeing that the research is based on accepted knowledge and advancing the discipline (Neuman, 2014).

2.2.1. Technology Acceptance Model

Fred D. Davis established the model in 1989, and it is one of the most popular frameworks for describing how people adopt and utilize new technologies. The main determinants of technology adoption, according to the Technology Acceptance Model, are perceived utility and ease of use. Users are more likely to accept an e-tendering system if they think it is user-friendly and useful for their job, which will improve procurement performance, according to the model. For Kenya National Highways Authority, if the e-tendering system is perceived as user-friendly and time-saving, procurement officers are more likely to embrace it. This will result in faster and more accurate tendering processes, greater transparency, and reduced opportunities for corruption. Increased adoption of the e-tendering system can enhance procurement performance by streamlining tendering processes and minimizing human errors. The adoption of e-tendering tools based on this model framework can improve the speed and quality of procurement decisions, decrease procurement cycle times, and increase transparency.

2.2.2 Resource-Based View

Jay B. Barney (1991) established the thesis, which centers on the notion that businesses can gain a long-term competitive edge by utilizing their distinct assets and competencies. Resources in this sense can include tangible assets, human capital, and technology systems, whereas capabilities are the firm's capacity to make efficient use of such resources (Barney, 1991). The theory suggests that e-tendering practices, when viewed as a valuable resource, can enhance procurement performance if Kenya National Highways Authority effectively utilizes this resource. The KeNHA's adoption of e-tendering can be considered a strategic resource that enables it to streamline procurement operations and manage tenders more efficiently. E-tendering systems enable better data management, improve communication with contractors, and ensure compliance with procurement regulations, which ultimately leads to improved procurement performance. If the e-tendering system is well integrated and utilized, it enhances KeNHA's ability to manage its procurement processes effectively, improving cost control, transparency, and the speed of execution. By treating e-tendering as a key resource, Kenya National Highways Authority can leverage it to achieve greater procurement efficiency, transparency and competitive advantage.

2.2.3 Contingency Theory

Joan Woodward developed this theory in 1958, and it asserts that there isn't a single organizational management strategy that works for everyone. Therefore, the particular context or environment in which any practice-including e-tendering-is used determines how effective it is. Woodward (1958) argued that the structure and practices of an organization should be aligned with various external and internal factors such as technology, environment, and organizational characteristics. In this case, the success of e-tendering practices at Kenya National Highways Authority is contingent upon various factors such as the regulatory environment, the technological infrastructure, and the organizational culture.

The success of e-tendering at the KeNHA depends on several contingent factors. These may include the level of technological readiness within the organization, the training of procurement officers, the adequacy of information communication technology infrastructure, and the legal and regulatory environment surrounding procurement practices. For instance, if KeNHA information communication technology infrastructure is inadequate or procurement

officers lack the necessary skills, the benefits of e-tendering may not be fully realized. The alignment of e-tendering practices with these factors will determine the effectiveness of the procurement system. The theory suggests that for e-tendering to positively influence procurement performance, it must be adapted to the internal and external conditions of the KeNHA ensuring that these practices are implemented in a context that supports their success.

2.3 Empirical Literature Review

An empirical literature review looks at and summarizes studies that have collected and evaluated data on a certain subject, emphasizing the conclusions and approaches applied in practical settings (Field, 2013). The empirical data-such as surveys, experiments, case studies, and statistical analyses-that either confirms or refutes accepted ideas is highlighted in this review, offering insights into patterns, trends, and real-world applications. The empirical literature review finds knowledge gaps, areas of agreement or disagreement, and areas that require more investigation by assessing the reliability, validity, and limitations of earlier studies. It ensures that the research is based on a strong foundation of empirical data, bridging the gap between theory and practice (Kothari, 2004).

2.3.1 Automated Bid Evaluation and Procurement Performance

A study by Aros-Vera and Rodríguez (2019) in Chile focused on the impact of automated bid evaluation systems in public procurement. The study highlighted that the automation of bid evaluations in Chile improved transparency and reduced the overall processing time of tenders. The research found that automated systems significantly enhanced the speed of evaluation, minimized errors related to human judgment, and fostered a fairer competitive environment. The study indicated that automation led to increased efficiency, quicker decision-making, and greater accountability. However, the authors noted the challenges related to technical capacity and the need for skilled personnel to handle automated systems effectively. While the study provided insights into efficiency gains, it did not explore the specific challenges faced by public procurement officials during implementation or the long-term impact on procurement outcomes and therefore this study filled this gap.

In Nigeria, a study by Omotayo and Akinlolu (2020) explored the effect of e-procurement, including automated bid evaluation, on procurement performance in government agencies.

The research emphasized that automated systems reduced procurement cycle time, enhanced transparency, and minimized corruption by automating the evaluation process. The study showed that automation led to more accurate evaluations, reduced human bias, and improved procurement outcomes. However, it also pointed out that inadequate infrastructure and insufficient training was significant barriers to the successful adoption of these systems. The study did not assess the specific impact of automated bid evaluation on the performance of individual procurement officers or how these systems align with the country's regulatory framework therefore this study filled this gap.

In Uganda, Nalukwago (2021) assessed the role of e-procurement in enhancing procurement performance in public sector organizations, particularly focusing on automated bid evaluation systems. The research found that automated bid evaluations improved the fairness of the procurement process by ensuring that evaluations were based strictly on predefined criteria, rather than subjective judgment. The study indicated that e-procurement, including automated bid evaluation, resulted in greater accountability, reduced procurement time, and increased competition among bidders. However, it also highlighted the challenges of adapting to the system, including resistance to change and lack of adequate training. While the study provided useful insights into the benefits of automated systems, it did not explore the comparative effectiveness of different automated bid evaluation platforms or how user experience influences the efficiency of these systems therefore this study filled this gap.

A study by Mutuku and Mumo (2020) in Kenya examined the impact of e-procurement systems, including automated bid evaluation, on the efficiency of public procurement in government agencies. The research found that automated bid evaluation systems significantly reduced procurement time and enhanced decision-making accuracy. The study showed that automation allowed for better management of procurement processes, reduced the risk of errors, and increased transparency in public procurement. However, it also highlighted challenges such as the lack of integration between different procurement platforms and insufficient support for end-users. The study did not address the role of the legal and regulatory environment in facilitating or hindering the adoption of automated bid evaluation systems therefore this study filled this gap.

2.3.2 Electronic Contract Award and Procurement Performance

A study by Cameron and Cummings (2019) in Scotland investigated the implementation of electronic contract award systems within the public sector. The study aimed to assess how e-procurement and electronic contract awards impacted procurement performance, including efficiency, transparency, and fairness in the awarding process. The study found that electronic contract awards significantly improved procurement performance by reducing the time needed for decision-making, enhancing transparency, and minimizing the risks of corruption. The implementation led to better competition among bidders due to greater accessibility of information. However, the study also noted challenges related to the adaptability of procurement staff and the initial investment in technology. While the study addressed the overall improvements in procurement performance, it did not explore how the specific features of e-contract award systems (automated scoring systems, real-time updates) directly affected stakeholder satisfaction and the quality of the awarded contracts therefore this study filled this gap.

In South Africa, Khumalo and Dlamini (2020) explored the impact of e-procurement systems, particularly electronic contract awards, on public procurement performance. The study focused on government agencies and public sector organizations, analyzing how the automation of contract awards influenced efficiency, cost-effectiveness, and stakeholder trust. The research found that electronic contract awards led to a reduction in procurement cycle times, enhanced the transparency of the process, and increased bidder participation. However, the study also highlighted challenges such as limited digital literacy among procurement officers, which hindered the full benefits of e-contract award systems. The study did not consider the long-term effects of e-contract awards on the quality and performance of the awarded contracts. It also lacked an in-depth analysis of how these systems interacted with South Africa's legal and regulatory environment therefore this study filled this gap.

In Burundi, Munyengabe (2021) examined the impact of electronic contract awards on procurement performance in the public sector. The study looked at how e-procurement systems, including electronic contract awards, contributed to transparency, efficiency, and cost control in public procurement processes. The study concluded that e-contract awards significantly improved procurement performance by making the process more transparent and

reducing opportunities for corruption. The use of electronic systems helped standardize the award criteria, making it easier to compare and evaluate bids. However, it noted that infrastructure limitations and a lack of sufficient training for procurement staff were key barriers to the success of e-procurement systems in Burundi. The study did not provide a detailed comparison of the impact of electronic contract awards on procurement performance across different sectors or analyze the long-term sustainability of these systems therefore this study filled this gap.

A study by Mwangi and Muita (2020) in Kenya explored the influence of e-procurement practices, including electronic contract awards, on procurement performance in public institutions. The study specifically looked at how e-procurement systems affected the efficiency, accountability, and transparency of contract awards. The study found that e-contract awards improved procurement performance by reducing time delays and ensuring a more transparent process. Furthermore, the use of e-procurement led to greater bidder competition and a reduction in procurement-related disputes. However, the study noted the challenges of integrating e-procurement systems with existing procurement practices and legal frameworks. The study did not fully examine the challenges related to the legal and regulatory environment or assess the long-term effects of electronic contract awards on procurement performance in Kenya therefore this study filled this gap.

2.3.3 Online Tender Invitation and Procurement Performance

In Korea, Kim and Lee (2019) analyzed the effects of e-procurement systems, with a specific focus on online tender invitations, on the performance of public procurement. The study examined how online tender invitations influenced the efficiency of the procurement process, including bid submission, evaluation, and contract award. The research found that online tender invitations improved procurement performance by reducing the time spent on inviting tenders, enabling a more efficient evaluation process, and increasing accessibility for bidders. The system also enhanced transparency, as all information about the tendering process was made available to potential bidders. However, the study noted challenges such as the digital divide, where small businesses faced difficulties accessing and using the online platform. While the study highlighted improvements in procurement efficiency and transparency, it did

not address the long-term impacts of online tender invitations on bidder behavior or procurement outcomes therefore this study filled this gap.

A study conducted by Ali and Sherif (2020) in Egypt explored the relationship between online tendering practices, including online tender invitations, and procurement performance in the public sector. The study examined how these practices affected procurement outcomes, particularly in terms of cost-effectiveness and time efficiency. The research found that online tender invitations reduced the time required to issue and receive tenders, thus improving procurement timelines. Furthermore, it led to a reduction in procurement costs due to the lower administrative burden associated with paper-based systems. The study also indicated an increase in the level of competition among bidders, as more suppliers had easier access to tender information. The study did not explore the challenges associated with internet access and digital literacy, particularly among small and medium enterprises, which may hinder the widespread adoption of online tender invitations therefore this study filled this gap.

In Tanzania, Moshi and Mwakalukwa (2021) studied the effect of e-tendering, including online tender invitations, on procurement performance in public institutions. The study sought to identify the benefits and challenges of using online platforms to invite tenders in the context of Tanzanian public procurement. The study found that online tender invitations enhanced transparency and made the process more accessible for suppliers. It also reduced the time taken to issue tenders and made it easier to track and evaluate bids. However, the study identified challenges such as limited internet infrastructure, which made it difficult for some suppliers in rural areas to participate in the tendering process. Although the study addressed the impact of online tender invitations, it did not provide insights into the broader effect on procurement performance beyond transparency, such as long-term cost savings or the efficiency of the award process therefore this study filled this gap.

Wambua and Mwangi (2020) investigated the influence of online tender invitations on procurement performance in public procurement systems. The research examined how the adoption of e-tendering platforms affected procurement timelines, cost efficiency, and bidder participation. The study revealed that online tender invitations had a positive impact on procurement performance by reducing delays associated with manual tendering processes. It

also improved bidder participation due to better accessibility and more transparent processes. However, the study also noted challenges such as inadequate internet infrastructure and the need for continuous training of procurement officers to maximize the benefits of e-tendering. The study did not explore the broader implications of online tender invitations on procurement outcomes in terms of long-term efficiency or the quality of the awarded contracts therefore this study filled this gap.

2.3.4 Electronic Supplier Prequalification and Procurement Performance

In England, a study by Bradley and Hughes (2019) investigated the effects of electronic supplier prequalification systems on procurement performance in public sector organizations. The study explored how these systems streamlined the supplier selection process and contributed to better procurement outcomes in terms of efficiency and cost-effectiveness. The research found that electronic supplier prequalification significantly enhanced procurement performance by reducing administrative costs, improving data accuracy, and increasing transparency in supplier evaluations. The system allowed procurement managers to easily access supplier qualifications and performance histories, thus ensuring that only capable suppliers were invited to tender. However, challenges related to the integration of electronic systems with existing procurement practices and the need for proper staff training was also highlighted. The study did not explore the impact of electronic supplier prequalification on the long-term performance of suppliers, such as whether the system led to improve supplier performance over time or reduced procurement disputes therefore this study filled this gap.

In Zimbabwe, Chisango and Zengeya (2020) examined the adoption and impact of electronic supplier prequalification on public procurement performance. The study focused on the benefits of using electronic systems to evaluate suppliers and how this influenced procurement outcome such as transparency, efficiency, and cost reduction. The study found that the use of electronic prequalification systems improved transparency and reduced corruption in procurement processes. Additionally, the system allowed procurement officers to streamline the prequalification process, reducing the time and effort required to assess suppliers manually. The system also facilitated better record-keeping, ensuring that supplier data was accurate and up-to-date. However, the study identified challenges such as the digital divide and the need for proper infrastructure to support the use of e-prequalification systems

in Zimbabwe. The study did not fully investigate how the adoption of electronic prequalification systems affected supplier competition or how it impacted the long-term sustainability of the procurement process therefore this study filled this gap.

In Congo, Ngoma and Tongo (2021) examined the use of electronic supplier prequalification systems in the construction sector and how it influenced procurement performance, particularly in the public procurement of construction services. The research revealed that electronic supplier prequalification had a positive impact on procurement performance by reducing delays in the supplier selection process, improving the accuracy of supplier evaluations, and enhancing competition among bidders. The system helped to ensure that only qualified and experienced suppliers were selected for contracts, which improved the quality of the completed projects. However, the study also pointed out that the system was not fully utilized due to limited technical skills and poor internet infrastructure in some parts of the country. Although the study demonstrated improvements in procurement efficiency and quality, it did not explore the challenges faced by smaller suppliers in accessing the prequalification system or how to address these barriers therefore this study filled this gap.

Ochieng and Munyiri (2020) analyzed the effect of electronic supplier prequalification systems on procurement performance in public institutions. The study investigated how the use of e-prequalification influenced the selection of qualified suppliers, procurement timelines, and the overall effectiveness of procurement processes. The study found that electronic supplier prequalification improved procurement performance by reducing the time taken to evaluate suppliers and ensuring that only competent suppliers were selected. The system also improved transparency by providing easy access to supplier data and performance histories. Despite these advantages, the study highlighted challenges such as the underdeveloped infrastructure in certain regions and the need for continuous training of procurement staff to fully leverage the e-prequalification system. While the study examined the short-term benefits of e-prequalification, it did not explore the long-term implications for supplier relationship management and the sustainability of the procurement system therefore this study filled this gap.

2.3 Summary of Knowledge Gaps

Table 1 Summary of Knowledge Gaps

Author	Year	Title	Findings	Research Gaps	Focus on the Current Study
Abe, Y.	(2019)	Automated bid evaluation in procurement systems	The adoption of automated bid evaluation systems reduced processing times, minimized human errors, and improved the consistency of bid evaluations in public procurement	While the study highlighted the benefits of automation, it did not address the potential limitations of automated systems in evaluating complex or highly technical bids that require subjective judgment	This study contributed to understanding how automated systems perform in procurement but recommended further research into integrating human oversight to account for situations requiring qualitative analysis
Aitken, A., & Huxley, M.	(2018)	Electronic contract awards: Transparency and trust in public procurement	The research found that electronic contract awards increased transparency and efficiency, reducing the time between bid evaluation and contract finalization.	The study focused on transparency and efficiency but did not explore the cybersecurity risks associated with electronic contract awards, in terms of protecting sensitive award data	This study enhanced understanding by focusing on role of transparency in improving trust in procurement but called for further study into security implications of digital contract award systems

Author	Year	Title	Findings	Research Gaps	Focus on the Current Study
Anastasopoulos, P., Dimitriou, S., & Papalouka, A.	(2020)	The impact of online tender invitations on procurement performance	The study found that online tender invitations enhanced the reach of procurement opportunities to a broader range of suppliers, leading to more competitive bids and lower prices.	Despite the observed benefits, the study did not examine the accessibility challenges faced by smaller suppliers or those from regions with limited internet connectivity.	This study contributed to understanding how online systems can increase supplier engagement but acknowledged the need for future studies focusing on inclusivity and the digital divide to ensure equal access for all suppliers.
Birchall, R.A.	(2016)	The role of electronic supplier prequalification in procurement performance	This study found electronic supplier prequalification systems allowed procurement teams to more accurately assess the financial stability and compliance of suppliers, improving risk management in the procurement process.	The study did not explore the challenges faced by small and medium-sized enterprises in meeting the criteria of electronic prequalification systems, particularly in regions where SMEs lack digital capabilities.	The study improved understanding of how electronic prequalification enhances procurement efficiency but pointed out that further research is needed to address the inclusivity of SMEs in the digital prequalification process.

2.4 Conceptual Framework

By defining and identifying important variables or constructs and their connections, a conceptual framework is an organized set of ideas and concepts that directs research. It offers a concise narrative or graphic depiction of the theoretical underpinnings, describing the variables to be examined and their anticipated interactions or influences (Creswell, 2014).

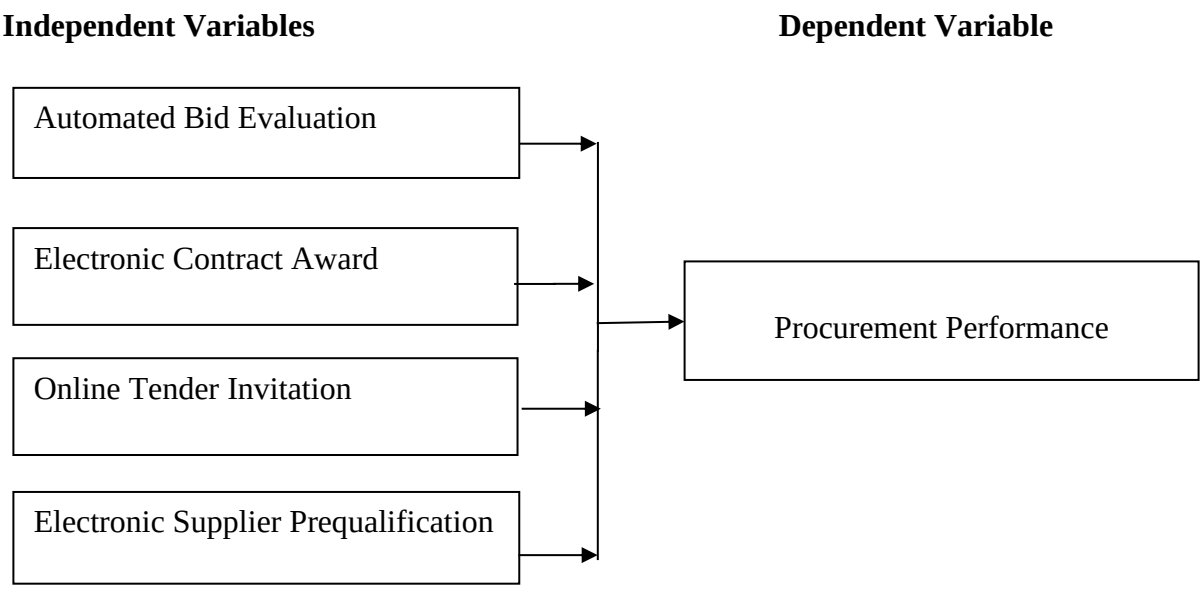

Figure 1 Conceptual Framework

2.5 Operationalization of Variables

Table 2 Operationalization of Variables

Variable	Indicators	Measurement Scale	Tools of Analysis
Automated Bid Evaluation	• Processing Time • Error Rate • Bid Quality • Scalability • Transparency	Questionnaire	Frequencies Percentages
Electronic Contract Award	▪ Award Time ▪ Auditability ▪ Award Transparency ▪ Cost Efficiency ▪ Contractual Disputes	Questionnaire	Frequencies Percentages
Online Tender Invitation	• Cost of Tendering • Bidder Diversity • Cost of Tendering • Reach of Tender Invitations • Supplier Engagement	Questionnaire	Frequencies Percentages
Electronic Supplier Prequalification	• Prequalification Time • Supplier Data Accuracy • Risk Management • Data Integration • Transparency of Prequalification Criteria	Questionnaire	Frequencies Percentages

2.6 Chapter Summary

The study literature review is presented in this chapter. Several hypotheses that aid in elucidating the research challenge are covered in this chapter. Additionally, an empirical literature review describes how previous researchers have examined the connection between independent and dependent variables. This chapter provides an overview of the study's gaps and summary. There has been discussion about using conceptual frameworks as study frameworks. The operationalization of variables is also included in this chapter.

CHAPTER THREE
RESEARCH DESIGN AND METHODOLOGY

3.0 Introduction

This study's research design, target population, sampling strategy, tool for gathering data, technique for analyzing and presenting results, ethical considerations, and chapter summary are all included in this chapter.

3.1 Research Design

A research study's overarching plan or blueprint is referred to as its research design. In order to ensure that the study is carried out methodically and successfully in order to answer the research question, it describes the processes for gathering, evaluating, and interpreting data. In order to ensure the validity, reliability, and generalizability of the study's findings, the design is crucial in determining the research's procedures, sample strategies, and tools (Creswell, 2014). This study used a descriptive research design, which is a kind of research methodology that aims to give a thorough, accurate description of phenomena or the features of a population or circumstance. Finding patterns and trends within a population or giving an overview of the current situation are two areas in which descriptive research excels (Cohen, Manion, & Morrison, 2018).

3.2 Target Population

Kothari (2015), target population describes the whole set of people or things that a study is trying to figure out or make inferences about. The target population was 55 employees working within the supply chain department of the Kenya National Highways Authority head office in Nairobi. Identifying and defining the target population is crucial because it ensures that the sample selected for the study is representative and relevant to the research goals.

Table 3 Target Population

Category	Frequency	Percentage
Procurement Section	10	18
Logistics and Distribution	25	46
Inventory and Asset Management	20	36
Total	**55**	**100**

Source: Kenya National Highways Authority (2025)

3.3 Sample and Sampling Technique

A subset of people or things chosen for a study from a broader population is referred to as a sample. The sample is used to draw conclusions or generalizations about the larger population. The process of choosing persons or units from the population to form a sample is referred to as the sampling methodology. Making ensuring the sample is representative of the population is the aim of utilizing a sampling strategy so that reliable and accurate conclusions can be drawn (Creswell, 2014). The use of census was adopted in this study. A census is a technique for gathering data in which every person or unit in a population is surveyed or studied. In other words, the census attempts to collect data from every member of the population, not just a chosen group (Cohen, Manion, & Morrison, 2018). Since every individual or unit is included, a census provides complete data, leading to higher accuracy compared to sampling methods that might miss certain parts of the population. It eliminates the possibility of sampling bias, ensuring that no group is overrepresented or underrepresented (Creswell, 2014).

3.4 Data Collection Instrument

Questionnaires were employed in this stuyd. A questionnaire is a structured tool for collecting data that consists of a list of inquiries intended to elicit information from respondents regarding a certain subject, problem, or phenomena. One advantage of using questionnaires is that they may be standardized, which helps to ensure data dependability and comparability by having all participants respond to the same set of questions. Furthermore, questionnaires provide a clear and systematic way of gathering data, which can improve the validity and accuracy of the research findings (Bryman, 2016).

3.5 Pilot Study

As defined by Kothari (2015), it is an initial, exploratory investigation designed to identify potential issues with the study design, assess logistical viability, and develop and enhance research tools. A pilot study is a small-scale preliminary study conducted before the main research to test the feasibility, time, cost, and procedures of the study design, as well as to identify potential issues with the research instruments or methods (Creswell, 2014). It allows researchers to refine their data collection procedures and identify any problems in the study design before committing to full-scale research. It is generally recommended to undertake a

pilot study on 10% of the sample size because this proportion allows for a meaningful assessment of the research instruments while remaining manageable in terms of time and cost. By testing the instruments on a smaller group that is representative of the larger population, researchers can identify issues like ambiguous questions, technical problems, or logistical challenges in data collection.

3.5.1 Validity Test

This is the degree to which a research tool captures the information it is supposed to capture. A valid instrument ensures that the conclusions drawn from the data accurately reflect the reality of the construct being studied (Cohen et al., 2018). In this study, to uphold validity, the researcher will ensure content validity by carefully designing the questions to accurately capture all aspects of the study. They would also assess construct validity by verifying that the survey items truly measure the theoretical concepts of procurement performance.

3.5.2 Reliability Test

A reliability test examines how consistently and repeatable an instrument provides data to ascertain whether an assessment tool is free from random mistakes and can be trusted to measure the intended construct effectively (Kothari and Garg, 2015). To enhance the dependability test, the researcher developed clear, concise and exact questions. The researcher avoided using wording that is unclear or difficult because it may lead to conflicting interpretations.

3.6 Data Collection Procedure

The data collection process for this study, which was carried out at the Kenya National Highways Authority involved using authorized questionnaires to get thorough information from the participants. This was after the approval and the researchers would ensure that all data collection processes are carried out ethically, with informed consent obtained from participants and confidentiality maintained throughout.

3.7 Data Analysis Method and Presentation

Data analysis, according to Creswell (2014), is the act of examining, purifying, converting, and modeling data in order to find relevant information, make inferences, and aid in decision-

making. The study would be documented in a detailed report with appropriate references and conclusions drawn from the analyzed data. Likert-scale questions were adopted to quantify responses about automated bid evaluation, electronic contract award, online tender invitation and electronic supplier prequalification. The use of Microsoft excel was adopted to analyze data. The results were presented in a report that combines graphs, such as bar charts or pie charts for quantitative data, along with direct quotes or summarized themes from qualitative responses

3.8 Ethical Considerations

3.8.1 Informed Consent

Participants must be fully informed about the nature, purpose, techniques, potential risks, and benefits of a study before consenting to participate. The researcher avoided using technical jargon that could mislead participants and instead gave simple and understandable information to improve informed consent. Participants were given the opportunity to ask questions and obtain answers during the consent process, guaranteeing that their choice to participate was chosen on their own. In addition, researchers reaffirmed the participants' autonomy by confirming that they are aware of their freedom to leave the study at any moment and without consequence.

3.8.2 Voluntary Participation

Voluntary participation emphasizes that individuals are free to choose whether or not they wish to take part in a study, without being coerced or manipulated. Enhancing this ethic involves making it clear from the outset that participation is not mandatory, and that there are no negative consequences for choosing not to participate or for withdrawing at any point during the study. Researcher also provided additional reassurances that participation could not be influenced their relationship with the institution or any benefits they might receive, further minimizing pressure or perceived obligation to take part.

3.8.3 Confidentiality

Confidentiality in research means that any personal or sensitive information provided by participants is protected and not shared with unauthorized individuals. To enhance confidentiality, researcher should implement strict data security measures, such as encrypted

storage and restricted access to participant information. Confidentiality should include clear explanations of how the data will be handled, and participants should be assured that identifying information could not be disclosed without their explicit permission, except where legally required. By ensuring that data is used only for its intended purpose and is protected, researchers can build trust with participants.

3.8.4 Privacy

Privacy is the right of participants to control access to their personal information. The researcher enhanced privacy by ensuring that personal details, whether collected directly or indirectly, were not disclosed without the participant's consent. This involved using secure platforms for interviews and ensuring that any physical records are stored in secure locations. The researchers also avoided collecting unnecessary data and limited the use of any sensitive information to only what is essential for the study, thus protecting the privacy of the participants.

3.8.5 Anonymity

Anonymity means that participants' identities remain unknown throughout and after the research process. To enhance anonymity, the researcher ensured that identifying information is not collected or, if necessary, that identifiers are kept separate from the data in a way that prevents the identification of individual participants. This was accomplished by using unique codes instead of real names and ensuring that no identifying information is included in reports or publications. By guaranteeing anonymity, researchers helped to minimize any risks of stigmatization or personal harm, offering participants a sense of safety and security in their involvement.

3.9 Chapter Summary

An outline of the study project and details on the methods for data collecting, analysis, and presentation are included in this part. This chapter's first portion covers the research strategy, the primary data collection methods, and the demographic of interest. A variety of data collection procedures are covered in this chapter, including validity and reliability testing. Data processing techniques and ethical concerns are also covered in this chapter.

CHAPTER FOUR

RESEARCH FINDINGS AND DISCUSSION

4.0 Introduction

The presentation of research findings, the study's limitations, and a chapter summary are among the subheadings that make up this chapter.

4.1 Presentation of Research Findings

Table 4 Response Rate

Category	Frequency	Percentage
Response	49	89
Non-Response	6	11
Total	**55**	**100**

The research questionnaires that were issued had a sample size of 55 respondents, which was used to calculate the response rate. The results of this study showed that it was a successful study because 89% of the total responses were positive, while 11% of the responses were minority responses.

Table 5 Gender Analysis

Category	Frequency	Percentage
Male	30	61
Female	19	39
Total	**49**	**100**

The Male research participants were the predominant gender when calculating the percentage of each gender in this organization. This was an unmistakable clue that there was a gender imbalance in this organization. According to the study's findings, 61% of the research participants were men, while 39% were women.

Table 6 Age Brackets

Category	Frequency	Percentage
18-22 years	2	4
23-27 years	6	12
28-32 years	12	24
33 years and above	29	60
Total	**49**	**100**

The evaluation of the age analysis of this organization's employees who participated in this study was improved. 40% of respondents were between the ages of 18 and 22, 12% were between the ages of 23 and 27, 24% were between the ages of 28 and 32, and 60% were older than 33, which was the most common response.

Table 7 Highest Education Level

Category	Frequency	Percentage
Secondary Certificate	4	8
College Diploma	24	49
University Degree	16	33
Postgraduate Level	5	10
Total	**49**	**100**

The best educational levels attained by the research participants were identified in this investigation. This discovery demonstrated that the workforce was highly educated and, hence, capable of producing results. The results showed that 10% represented postgraduate level, 49% for college diploma, 33% for university degree, and 8% for secondary certificate.

Table 8 Length of Service

Category	Frequency	Percentage
1-4 years	4	8
5-8 years	16	33
9 years & above	25	59
Total	**49**	**100**

It was established to evaluate research participants' experiences. 59% had worked for nine years or more, 33% for five to eight years, and 8% for one to four years. This result showed that the company had a strong and highly experienced workforce, which is indicative of the workers' improved performance.

Table 9 Rating the effect of automated bid evaluation on procurement performance

	Strongly Agreed	Agreed	Neutral	Disagreed	Strongly Disagreed
The use of automated bid evaluation reduces human error in the procurement process	59%	41%	0%	0%	0%
Automated bid evaluation increases the efficiency of the procurement decision-making process	55%	45%	0%	0%	0%
The automated bid evaluation system provides more objective and transparent outcomes	57%	43%	0%	0%	0%

Automated bid evaluation helps ensure compliance with procurement regulations and policies	52%	48%	0%	0%	0%
The use of automated bid evaluation speeds up the procurement cycle and reduces delays	61%	37%	2%	0%	0%

The study assessed the rating of effect of automated bid evaluation on procurement performance. On determining if the use of automated bid evaluation reduces human error in the procurement process, the strongly agreed and agreed were dominant response and indicated that, automated bid evaluation systems significantly reduce human errors because the process follows predefined algorithms and objective criteria. By eliminating subjective decision-making, the system ensures more consistent results, which leads to fewer mistakes, such as miscalculating scores or overlooking key aspects of a bid. On assessing if automated bid evaluation increases the efficiency of the procurement decision-making process, a high number of research participants agreed and indicated that, automated bid evaluation has the ability to speed up the decision-making process. The system can process large volumes of bids quickly, comparing them against criteria without the need for time-consuming manual efforts. This leads to more efficient procurement operations, which is likely to be acknowledged by most respondents, particularly in large-scale procurement environments. On determining if the automated bid evaluation system provides more objective and transparent outcomes, high number of response was for agreed and strongly agree. The respondents revealed that, automated systems typically apply uniform criteria to all bids, which ensures that the evaluation is objective and transparent. There is less room for subjective interpretation or bias, leading to more transparent results that can be easily audited and tracked. As a result, this would likely garner agreement from respondents who value fairness and consistency in procurement decisions. On assessing if automated bid evaluation helps ensure compliance with procurement regulations and policies, a large number of research participants agree and strongly agree and indicated that, automated systems are often designed to be in compliance with relevant procurement regulations and policies. They can be configured to flag any deviations from the rules, ensuring that all bids meet legal, financial,

and technical standards. This level of built-in compliance control helps reduce the risk of non-compliance, and procurement managers can feel confident that the evaluation process aligns with regulations. On assessing if the use of automated bid evaluation speeds up the procurement cycle and reduces delays, a large number of respondents agree and strongly agree and indicated that, one of the main benefits of automation is its ability to reduce the time it takes to evaluate bids and make decisions. By eliminating manual evaluation and automating data processing, the procurement cycle can be significantly shortened, leading to faster decision-making and reduced delays. This statement received agreement from respondents who have experienced faster procurement cycles with automated systems.

Table 10 Rating the effect of electronic contract award on procurement performance

	Strongly Agreed	Agreed	Neutral	Disagreed	Strongly Disagreed
Electronic contract award systems improve the accuracy and speed of awarding contracts	50%	50%	0%	0%	0%
The use of electronic contract award systems enhances transparency in the procurement process	45%	55%	0%	0%	0%
Electronic contract award reduces likelihood of disputes in awarding process	48%	52%	0%	0%	0%
The electronic contract award process ensures better compliance with procurement regulations	50%	48%	2%	0%	0%

The use of electronic contract award platforms leads to cost savings and increased value in procurement	59%	41%	0%	0%	0%

On assessing if electronic contract award systems improve the accuracy and speed of awarding contracts, a large number was for agree and strongly agree. Respondents also revealed that, electronic contract award systems are designed to streamline the awarding process by automating many of the manual tasks involved in contract preparation and approval. They improve accuracy by reducing human errors, such as miscalculating terms or overlooking important details. These systems can expedite approvals and the finalization of contracts through digital signatures and automated workflows. On determining if the use of electronic contract award systems enhances transparency in the procurement process, a high number agree and others strongly agree and indicated that electronic contract award systems increase transparency by providing an auditable trail of actions and decisions. Every step of the contract award process can be tracked, from the submission of bids to final contract approval, making it easier for stakeholders to monitor the process. This transparency reduces the potential for corruption, favoritism, or mistakes, and helps to ensure that procurement decisions are made based on objective criteria. On determining if electronic contract award reduces the likelihood of disputes in the awarding process, a large number agree and strongly agree. The participants also indicated that, electronic contract award systems have the clarity and consistency and thus its one advantage it comprise of. These systems reduce ambiguity by automating the application of rules and ensuring that all procurement decisions are based on standardized criteria. This lowers the likelihood of misunderstandings, disputes, or allegations of favoritism, which can be more common in manual processes. The finding on whether electronic contract award process ensures better compliance with procurement regulations indicated that, the dominant response was agreeing and strongly agree. The study also revealed that, electronic contract award systems can be configured to adhere strictly to procurement regulations and policies. By automating compliance checks, these systems ensure that contracts are awarded according to predefined legal and regulatory frameworks, reducing the risk of non-compliance. On determining if the use of electronic contract award platforms leads to cost savings and increased value in procurement large representation was

for those who agree and the ones that strongly agree. The study indicated that, by reducing administrative costs, increasing the speed of the procurement process, and minimizing errors, electronic contract award platforms can lead to significant cost savings. Additionally, the transparency and efficiency these systems bring may enable organizations to better negotiate favorable terms with suppliers, increasing value in procurement.

Table 11 Rating the effect of online tender invitation on procurement performance

	Strongly Agreed	Agreed	Neutral	Disagreed	Strongly Disagreed
Online tender invitations increase the access of procurement opportunities to a wider pool of suppliers	64%	36%	0%	0%	0%
The use of online tender invitations reduces the administrative burden and paperwork involved	48%	52%	0%	0%	0%
Online tender invitations contribute to a more competitive bidding process	48%	50%	2%	0%	0%
The use of online tender invitations makes it easier to track and manage the tendering process	55%	45%	0%	0%	0%
Online tender invitations improve supplier participation and engagement in the procurement process	50%	50%	0%	0%	0%

The effect of online tender invitations on procurement performance was determined through this study. The statement on whether online tender invitations increase the accessibility of procurement opportunities to a wider pool of suppliers was represented by dominancy of agree and strongly agree responses. The finding also outlined that, online tender invitations make procurement opportunities more accessible by eliminating geographic barriers, enabling suppliers from different regions to participate. The pool of possible bidders is increased because suppliers can view the tender materials and place bids from any location. This makes it more competitive and could result in higher-quality bids. On whether the use of online tender invitations reduces the administrative burden and paperwork involved, agree and strongly agree represented the most response. The respondents also indicated online tender invitations significantly reduce the need for paper-based processes, such as printing, mailing, and physically storing tender documents. By automating many of the administrative tasks involved in tendering, such as document distribution and bid submission, procurement teams can save considerable time and resources. The finding on whether online tender invitations contribute to a more competitive bidding process, a large number of participants were in agreement and revealed that, online tender invitations increase the visibility of procurement opportunities, allowing more suppliers to learn about and participate in the process. This increased visibility typically leads to more suppliers submitting bids, which intensifies competition. A more competitive process often results in better pricing and innovative solutions. On whether the use of online tender invitations makes it easier to track and manage the tendering process, large response comprised of agree and strongly agree and the participants also indicated that, online tender platforms provide centralized dashboards where procurement officers can track the status of each tender, monitor deadlines, and manage the submission and evaluation processes efficiently. These platforms also allow for real-time updates and notifications, making it easier for procurement teams to stay organized and manage multiple tenders simultaneously. On assessing whether online tender invitations improve supplier participation and engagement in the procurement process, a large response indicated that, online platforms can facilitate suppliers' access to tender details, inquiries, and bid submissions. The convenience and speed of online systems encourage greater participation and can lead to higher levels of engagement from suppliers. Suppliers also have

the opportunity to receive instant updates and clarifications, which may further improve their participation.

Table 12 Rating of electronic supplier prequalification on procurement performance

	Strongly Agreed	Agreed	Neutral	Disagreed	Strongly Disagreed
Electronic supplier prequalification simplifies the process of verifying supplier eligibility	48%	48%	2%	2%	0%
The use of electronic supplier prequalification ensures a more accurate assessment of supplier capabilities	59%	41%	0%	0%	0%
Electronic supplier prequalification reduces the administrative workload in supplier management	48%	48%	2%	2%	0%
The process of electronic supplier prequalification increases the transparency of supplier selection	56%	42%	2%	0%	0%
Electronic supplier prequalification results in a more efficient and streamlined procurement process	50%	48%	2%	0%	0%

The study determined the effect of online tender invitations on procurement performance. The statement on whether electronic supplier prequalification simplifies the process of verifying supplier eligibility, large number of research participants Agree and other Strongly Agree. The respondents also indicated that, electronic supplier prequalification systems automate the process of verifying supplier eligibility, such as financial stability, technical expertise, and regulatory compliance. By digitalizing the submission and verification of key documents, the system can reduce manual checking and cross-referencing, simplifying the process significantly. On assessing if the use of electronic supplier prequalification ensures a more accurate assessment of supplier capabilities, large number of respondents agreed and indicated that, electronic prequalification systems allow for the integration of real-time data and the use of objective, predefined criteria to assess supplier capabilities. Automation minimizes human error and biases, ensuring that the assessment is consistent and based on accurate data. This accuracy is especially critical for evaluating technical skills, past performance, financial health, and certifications. On investigating if electronic supplier prequalification reduces the administrative workload in supplier management, the dominant response comprised of agrees and strongly agree. The participants also indicated that, traditional supplier management involves a lot of paperwork and manual processes, such as collecting and verifying documents, updating records, and communicating with suppliers. Electronic supplier prequalification systems automate many of these tasks, such as collecting necessary documentation, checking eligibility criteria, and updating supplier profiles. This reduces the time and effort required from procurement teams. On assessing if the process of electronic supplier prequalification increases the transparency of supplier selection, a large number of response comprised of strongly agreed and agreed and indicated that, electronic supplier prequalification systems provide clear, auditable trails of how suppliers are assessed and selected, ensuring that all criteria are met and documented. This enhances transparency, as both the procurement team and suppliers can easily track the status of their prequalification and understand the selection process. Additionally, the ability to review and verify records electronically reduces the potential for manipulation or bias in supplier selection. The finding on whether electronic supplier prequalification results in a more efficient and streamlined procurement process established that, large response consisted of the agree and strongly agree and respondents indicated that, by automating the supplier prequalification process, the

overall procurement process becomes more efficient. Suppliers who are prequalified electronically can quickly be added to the approved list, reducing delays in the tendering and bidding process. Additionally, procurement teams can access up-to-date, accurate supplier data with ease, speeding up decision-making. Electronic systems also streamline the evaluation of new suppliers, reducing redundancy in data collection.

4.2 Limitations of the Study

Due to the study being focused on a sensitive and private topic within the company, several respondents chose not to divulge all relevant information out of fear that their higher supervisors might take advantage of them. The researcher wrote an introductory letter from the MUA confirming the study's official status, academic focus, and usage restrictions in order to overcome this challenge.

Due to the organization's policies and limitations, the researcher had to deal with a lengthy process while distributing questionnaires. By demonstrating to the management the significance of the study, particularly in relation to employee questionnaire responses, and how the results may be used to develop solutions for the company's issues, the researcher was able to overcome this limitation. Given that upper level management is usually wary of academics, some respondents expressed concerns about the amount of information they would be expected to divulge without fear of repercussions. However, these concerns were allayed early on by using a letter from the MUA and giving the respondents the support they needed.

4.3 Chapter Summary

The broad overview of the data or information gathered from the field is given in this chapter. Questionnaires were used to gather the data, which was the first tangible or primary source of information. Numerous respondents have contributed a variety of conclusions, and a number of corroborating authority have also been included.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.0 Introduction

This chapter provides a final explanation on researcher findings from the questionnaires administered. It comprises of summary, conclusion and recommendations.

5.1 Summary of Findings

5.1.1 Effect of Automated Bid Evaluation on Procurement Performance

The study finding established that, a large number of research participants agreed that automated bid evaluation has an effect on procurement performance. This finding goes hand in hand with Mutuku and Njeru (2022) study which revealed that, by using automated systems, organizations can quickly assess bids based on predefined criteria, which minimizes human error and reduces the time spent on manual evaluations. This automation ensures that the process is more objective, as the evaluation algorithm strictly adheres to the established rules and parameters, thereby mitigating potential biases. Abe (2019) also established that, automated bid evaluations lead to quicker decision-making and allow procurement professionals to focus on strategic aspects of procurement, such as supplier relationships and contract negotiations, rather than spending excessive time on technical evaluations.

5.1.2 Effect of Electronic Contract Award on Procurement Performance

The research study finding established that, a large number of research participants agreed that electronic contract award has an effect on procurement performance. This finding relates to Ochieng and Munyiri (2020) research study which indicated that, electronic systems allow for the seamless transmission of contract awards, which not only accelerates the process but also increases the accessibility of information for all stakeholders involved. This transparency helps reduce instances of corruption or favoritism, as all details related to the award process are easily accessible to auditors and regulatory bodies. Aitken & Huxley (2018) also indicated that, the use of digital platforms facilitates better record-keeping and enables easier compliance with regulatory standards, ensuring that all processes are documented for future audits and scrutiny. The increase in transparency has led to higher levels of accountability, fostering trust among suppliers, and in turn, improving supplier relations and competition

5.1.3 Effect of Online Tender Invitation on Procurement Performance

The finding on whether online tender invitation has an effect on procurement performance established an existing strong relationship. This finding concurs with Wright, Reeves and Mckenzie (2020) study which established that, online tender invitations open up procurement process to a broader pool of suppliers, allowing for increased competition and potentially better pricing. The digital nature of online tendering facilitates easy access to tender documents and bid submission, which reduces delays and administrative costs associated with paper-based tenders. Anastasopoulos (2020) as indicated that, the increased competition from a wider range of suppliers can lead to more competitive pricing, better-quality goods, and services, as well as improved innovation in some cases. The efficiency of online systems also helps reduce the environmental impact of paper-based tendering processes.

5.1.4 Effect of Electronic Supplier Prequalification on Procurement Performance

The finding on whether electronic supplier prequalification has a connection on procurement performance established an existing strong relationship. This research finding relates with Wang, Liu and Zhang (2020) research study which indicated that, the digitization of the prequalification process enables procurement professionals to quickly evaluate and verify suppliers based on a set of predefined criteria, such as financial stability, compliance with industry standards, and past performance. This digital approach improves the accuracy and consistency of supplier assessments, ensuring that only qualified suppliers are considered for contracts. Wang et al., 2020) also indicated that, electronic supplier prequalification enhances the speed of the prequalification process, reducing the time needed to identify and approve suppliers. Systems provide greater visibility into a supplier's track record, making it easier to manage supplier risk and ensure compliance with contractual obligations.

5.2 Conclusion

Automated bid evaluation systems reduce the time spent on reviewing, scoring, and comparing bids by using predefined criteria and algorithms. This automation helps procurement teams quickly process large volumes of bids, resulting in faster decision-making and shortening procurement cycles. As a result, procurement departments can address urgent needs more effectively and businesses can launch projects without unnecessary delays.

With automated systems, the risk of human error, bias, or subjectivity in bid evaluations is significantly minimized. Automated bid evaluation systems follow predetermined, transparent criteria to assess each bid objectively, ensuring that decisions are consistent across different procurement processes. This leads to fairer selection processes and better outcomes for organizations seeking optimal supplier relationships.

Electronic contract award platforms speed up the process by automating the review, approval, and signing stages of contract awards. With the ability to quickly issue and sign contracts online, procurement teams reduce the time spent on administrative tasks and can expedite project initiation. This agility helps businesses respond more quickly to market changes or project deadlines.

Electronic contract awards provide clear audit trails, making it easier to track decisions, approvals, and communications. The transparency of digital contract award platforms ensures that all stakeholders can monitor the process in real time, reducing opportunities for corruption or unfair practices. This fosters trust and confidence in the procurement process.

By inviting tenders online, organizations can reach a much larger pool of suppliers-both local and international. This increases competition among suppliers, leading to better pricing, higher-quality bids, and innovative solutions. More suppliers are likely to engage with the procurement process, which can drive down costs and improve the selection of suppliers.

Online tender invitations facilitate clearer, faster communication between procurement teams and suppliers. Suppliers can easily access tender documents, ask questions, and receive clarifications through the platform. This reduces misunderstandings or errors that can occur in manual communication methods. It also allows for real-time updates, ensuring that all parties are on the same page.

Electronic supplier prequalification systems enable procurement organizations to assess potential suppliers' capabilities, financial stability, and compliance with regulatory standards more systematically. This helps mitigate risks associated with supplier failure, non-compliance, or poor performance. Suppliers that meet all criteria can be pre-approved, ensuring that only qualified vendors are invited to participate in future tenders.

Traditional supplier qualification processes are often lengthy and manual. With electronic systems, prequalification is faster because organizations can access digital records, automate verification checks, and quickly evaluate suppliers based on objective criteria. This speeds up the onboarding process for new suppliers, allowing organizations to maintain a dynamic and responsive supply chain.

5.3 Recommendations

To ensure that the automated bid evaluation process remains accurate and effective, it is crucial to keep the system updated with the latest evaluation criteria, algorithms, and industry standards. Regular software updates and maintenance will help the system adapt to changes in procurement practices, regulatory requirements, and market conditions.

For seamless operations, the automated bid evaluation system should be integrated with other procurement systems like supplier management, e-tendering, and contract management platforms. This integration ensures that all procurement data flows smoothly between different stages, providing a unified view of the procurement process and enhancing decision-making efficiency.

As contracts are awarded electronically, it's essential to implement strong cybersecurity protocols to protect sensitive contract data. This includes encrypting contracts, using multi-factor authentication for access, and ensuring secure channels for communication to prevent unauthorized access or data breaches.

Implementing a standardized workflow for electronic contract awards can help reduce confusion and ensure consistency in contract execution. This includes defining clear approval hierarchies, ensuring that all necessary legal and compliance checks are completed, and automating approval steps where possible to increase speed and reduce bottlenecks.

Online tender platforms should be user-friendly and accessible to all potential suppliers, including smaller businesses or those with limited technological expertise. Simplifying the interface, providing clear instructions, and offering technical support can encourage broader supplier participation and enhance competition.

It is vital to provide clear and concise tender information to suppliers through the online platform. This includes detailed tender documents, deadlines, submission instructions, and criteria for evaluation. Transparency in communication builds trust with suppliers and helps ensure that the process runs smoothly.

Organizations should define clear, objective, and comprehensive prequalification criteria that suppliers must meet to be eligible for participation in tenders. These criteria should cover aspects such as financial stability, technical capability, and past performance to ensure that only qualified suppliers are considered for contracts.

Supplier qualifications should not be static. Organizations should regularly review and update suppliers' credentials and ensure that they are re-evaluated periodically to account for any changes in their financial health, performance, or capacity. This ensures that the supplier database remains up-to-date and only includes those who are capable of meeting the organization's requirements.

5.4 Suggestions for Further Study

While KeNHA has implemented e-tendering to enhance transparency and procurement efficiency, it is unclear whether the same level of impact is realized in other road and infrastructure agencies like the Kenya Rural Roads Authority (KeRRA) and the Kenya Urban Roads Authority (KURA). Each agency may differ in terms of funding sources, organizational capacity, ICT infrastructure, and staff competency, which can influence the effectiveness of e-tendering systems. The research focus should be to compare how e-tendering practices influence procurement performance across different agencies, by focusing indicators such as: speed and efficiency of procurement processes, cost savings, supplier diversity and competition and compliance with procurement regulations

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APPENDIX I: INTRODUCTION LETTER

The Kenya National Highways Authority Head Office,
Barabara Plaza, Block A & C, Jomo Kenyatta International Airport,
P.O. Box 49712 - 00100,
Nairobi, Kenya

Dear Sir/ Madam,

RE: REQUEST FOR CONDUCTING A RESEARCH PROJECT

This is a letter of request aiming at seeking permission to be allowed to conduct my research project within your organization with the title (**Influence of E-Tendering practices on procurement performance of the Kenya National Highways Authority**).

I am the undergraduate student at the Management University of Africa and I will be grateful for any form of assistance that will be granted to me.

Your Sincerely,

Obare Gesare Lydiah

Adm. No ODLBML/28/01363/3/22

APPENDIX II: QUESTIONNAIRE

Dear Respondent

The below question is an academic questionnaire that aims at collecting information on INFLUENCE OF E-TENDERING PRACTICES ON PROCUREMENT PERFORMANCE OF THE KENYA NATIONAL HIGHWAYS AUTHORITY). Kindly, fill this questionnaire correctly in the provided spaces.

SECTION A: PERSONAL DETAILS

1. Indicate your Gender

   Male ( )

   Female ( )

2. Indicate your Age Bracket

   18-22 years ( )

   23-27 years ( )

   28-32 years ( )

   33 years and above ( )

3. Indicate your Highest level of education

   Primary Certificate ( )

   Secondary Certificate ( )

   College Diploma ( )

   Undergraduate Degree ( )

   Postgraduate Level ( )

4. Indicate your Length of service in this organization

   1-4 years ( )

   5-8 years ( )

   9 years & above ( )

SECTION B: AUTOMATED BID EVALUATION

7. With a scale of rating of 1-5, where 1 - strongly agree; 2-agree; 3-neutral; 4-disagree; 5 - strongly disagree, rate the extent you agree or disagree with the following statements on the effect of automated bid evaluation, electronic contract award, online tender invitation and electronic supplier prequalification on procurement performance of the Kenya National Highways Authority

Automated Bid Evaluation

Statements	1	2	3	4	5
The use of automated bid evaluation reduces human error in the procurement process					
Automated bid evaluation increases the efficiency of the procurement decision-making process					
The automated bid evaluation system provides more objective and transparent outcomes					
Automated bid evaluation helps ensure compliance with procurement regulations and policies					
The use of automated bid evaluation speeds up the procurement cycle and reduces delays					

Electronic Contract Award

Statements	1	2	3	4	5
Electronic contract award systems improve the accuracy and speed of awarding contracts					
The use of electronic contract award systems enhances transparency in the procurement process					
Electronic contract award reduces likelihood of disputes in awarding process					
The electronic contract award process ensures better compliance with procurement regulations					
The use of electronic contract award platforms leads to cost savings and increased value in procurement					

Online Tender Invitation

Statements	1	2	3	4	5
Online tender invitations increase the accessibility of procurement opportunities to a wider pool of suppliers					
The use of online tender invitations reduces the administrative burden and paperwork involved					
Online tender invitations contribute to a more competitive bidding process.					
The use of online tender invitations makes it easier to track and manage the tendering process					
Online tender invitations improve supplier participation and engagement in the procurement process					

Electronic Supplier Prequalification

Statements	1	2	3	4	5
Electronic supplier prequalification simplifies the process of verifying supplier eligibility					
The use of electronic supplier prequalification ensures a more accurate assessment of supplier capabilities					
Electronic supplier prequalification reduces the administrative workload in supplier management					
The process of electronic supplier prequalification increases the transparency of supplier selection					
Electronic supplier prequalification results in a more efficient and streamlined procurement process					