

**E-PROCUREMENT SYSTEMS AND DECISION MAKING PROCESSES IN AN
ORGANIZATION: A CASE STUDY ON HILL WATER**

JENNIFER AMUTUHIRE

M22B12/006

**A DISSERTATION SUBMITTED TO THE SCHOOL OF BUSINESS IN PARTIAL FULFILLMENT
OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF BACHELOR OF
PROCUREMENT AND LOGISTICS MANAGEMENT OF UGANDA CHRISTIAN UNIVERSITY**

June, 2025



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Declaration

I, Amutuhire Jennifer, declare that this dissertation entitled “E-Procurement Systems and Decision Making Processes in an Organization” is my original work and has not been submitted to any other institution or university for the award of a degree or any other academic qualification.

Wherever the work of others has been used, it has been duly acknowledged and cited in accordance with academic standards.

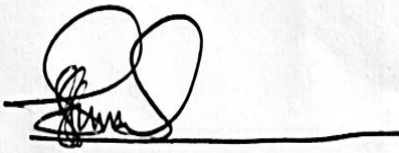


Amutuhire Jennifer

Date: 6/06/2025

Approval

This dissertation has been submitted for examination with my approval as the supervisor in partial fulfillment of the requirements for the award of a Bachelor's degree in procurement and logistics management of Uganda Christian University.

A handwritten signature in black ink, consisting of several loops and a horizontal line at the bottom, positioned above a solid horizontal line.

Mukisa Simon Peter

Date: 07/06/25

Dedication

This work is dedicated to my beloved parents, whose unwavering love, encouragement, and sacrifices laid the foundation for my education. To my mentors, friends, and all those who have believed in me throughout this academic journey, thank you for your inspiration and support. I love you!!

Acknowledgement

I express my deepest gratitude to Almighty God for the strength, wisdom, and perseverance throughout the course of this research. I extend sincere thanks to my supervisor, Mr. Mukisa, for the invaluable guidance, constructive feedback, and continuous support from the proposal stage to the final report.

I am grateful to the faculty and staff of school of business, as well as my fellow students whose discussions and encouragement contributed to the development of this work. Special thanks go to the management and staff of Hill water for providing access and cooperation during data collection.

To my family and friends, thank you for your patience, understanding, and unfailing moral support throughout this academic journey.

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Abstract

The adoption of e-procurement systems has increasingly become a strategic priority for organizations seeking to enhance efficiency, transparency, and cost-effectiveness in procurement processes. This study investigated the impact of e-procurement systems on decision-making processes at Hill Water. The research explored how different components of e-procurement systems, e-tendering, e-catalogue, e-invoicing and payment system influence decision-making. Employing a quantitative case study design, data was collected from 67 employees at Hill Water using questionnaires. The findings indicate a strong and statistically significant positive relationship between e-procurement systems and improved decision-making processes. A multiple linear regression model revealed that the e-procurement components collectively explain a substantial portion of the variance in decision-making ($R^2 = 0.692$, Adjusted $R^2 = 0.687$), with the model being highly significant ($F(5, 61) = 28.56$, $p < 0.001$). Individually, all tested components demonstrated significant positive relationships with decision-making: e-tendering ($B = 0.35$, $p < 0.01$, with a correlation of $r = 0.72$), e-catalogue ($B = 0.28$, $p < 0.05$), e-invoicing ($B = 0.19$, $p < 0.05$). These key statistical findings underscore the crucial role of a well-implemented e-procurement system in enhancing organizational decision-making. The study recommends that Hill Water continues to strategically invest in and optimize its e-procurement infrastructure to further enhance organizational efficiency and effectiveness based on these empirical result.

Chapter One

Introduction

Background of the Study

E-procurement, as a modern method for purchasing goods and services via electronic systems, has transformed the procurement process globally. This transformation, driven by technological advancements, is a key component in the broader trend of digitalization across industries. The Diffusion of Innovations (DOI) theory by Everett Rogers (1962) helps explain how, why, and at what rate new ideas and technology spread among different sectors. Rogers identifies key factors that influence adoption, such as relative advantage, compatibility, complexity, and observability, which affect the pace of adoption and the decision-making processes within organizations (Rogers, 2003). As the world becomes increasingly interconnected, e-procurement adoption is seen as an essential tool for enhancing operational efficiency, cost savings, and transparency, especially in the procurement processes of organizations (Croom & Brandon-Jones, 2007).

In the global context, the adoption of e-procurement systems has grown rapidly, particularly in developed countries where infrastructure and resources support its implementation (Chong & Ooi, 2008). For instance, many organizations in North America and Europe have embraced e-procurement to streamline procurement processes, improve procurement cycle times, reduce fraud, and enhance accountability (Gunasekaran & Ngai, 2008). These countries have witnessed a shift towards greater efficiency and transparency through digital solutions, setting a model for developing economies. However, challenges such as technological readiness, resistance to change, and lack of skilled personnel still hinder the widespread adoption of e-procurement systems globally (Sivathanu & Pillai, 2017).

In Africa, the adoption of e-procurement has been relatively slow compared to developed regions. According to a study by (

Oyedepo et al. 2017), several factors contribute to this delayed adoption, including inadequate technological infrastructure, poor internet connectivity, and limited access to training. Despite these challenges, there has been a growing recognition of the benefits that e-procurement systems bring, especially in public sector organizations, where transparency and cost-efficiency are key concerns (Olatunji & Oladipo, 2018). The African continent has seen an increasing number of government and private sector initiatives aimed at digitalizing procurement to reduce corruption and enhance the efficiency of procurement operations (Adewuyi & Olatunji, 2018).

Uganda, as part of the East African region, faces similar challenges in the adoption of e-procurement systems. While the government has made efforts to promote digital solutions in public procurement, the private sector remains hesitant. According to a report by the Ugandan

Ministry of Finance (2019), several hurdles such as limited technical capacity, insufficient broadband infrastructure, and resistance to change within organizations have impeded the widespread adoption of e-procurement. However, recent initiatives, including the Uganda Electronic Government Procurement (e-GP) system, have been introduced to streamline government procurement and reduce corruption (National Information Technology Authority, 2020). These efforts aim to increase the uptake of e-procurement solutions in both public and private sectors, helping Uganda to align with global trends of digitalization in procurement.

Hill Water Limited, a private company in Uganda, serves as a unique case for examining e-procurement adoption in a developing economy. The company, which focuses on the production and distribution of bottled water, is increasingly faced with the need for more efficient procurement processes to support its expanding operations. As the company seeks to enhance its competitiveness, adopting e-procurement could provide a solution to streamline its procurement processes, reduce costs, and improve supplier relationships. However, the decision to adopt e-procurement is influenced by factors such as organizational readiness, perceived benefits, and potential challenges unique to the company's environment. Therefore, understanding how Hill Water Limited perceives and adopts e-procurement systems will provide insight into the decision-making process and the broader implications for e-procurement adoption in Uganda.

Statement of the Problem

The adoption of e-procurement systems has become a critical aspect of modernizing procurement functions within organizations. E-procurement technologies streamline purchasing processes, reduce costs, enhance transparency, and improve overall efficiency (Gunasekaran & Ngai, 2008). Ideally, an organization such as Hill Water would experience improved decision-making capabilities and operational performance through the seamless integration of such systems (Zheng et al., 2004). These benefits also contribute to increased competitiveness in the market (Aboelmaged, 2010).

Despite these potential benefits, Hill Water faces significant challenges in fully implementing and utilizing e-procurement systems. These challenges may arise from a combination of factors, including organizational resistance to change, inadequate training, limited technical infrastructure, and a lack of awareness regarding the system's advantages (Vaidya et al., 2006). As a result, the organization continues to experience inefficiencies and delays in procurement, leading to suboptimal decision-making processes.

To address these issues, Hill Water has initiated several strategies such as employee training programs and awareness workshops. However, these efforts have not translated into widespread adoption, and traditional procurement practices still dominate (Panayiotou, Gayialis, & Tatsiopoulou, 2004). The existing systems have not been fully optimized to support data-driven decision-making, limiting their effectiveness.

What remains unclear is the exact nature of the barriers impeding e-procurement adoption at Hill Water, particularly concerning how these barriers influence procurement decision-making. There is also limited insight into how decision-makers perceive and interact with e-procurement tools, including their integration with legacy systems (Neupane, Soar, & Vaidya, 2012).

Purpose of the Study

The purpose of the study is to examine the effect of e-procurement systems on decision making.

The objectives of the Study will be to;

- i. Examine the effect of e-tendering system on procurement decision making processes in an organization.
- ii. Examine the effect of e-catalogue system on procurement decision making processes in an organization.
- iii. Examine the effect of e-invoicing and payment system on procurement decision processes in an organization.

Research Questions

- i. What is the effect of e-tendering systems on procurement decision-making processes in an organization?
- ii. How does the use of e-catalogue systems influence procurement decision-making processes in an organization?
- iii. In what ways do e-invoicing and payment systems impact procurement decision-making processes in an organization?

Scope of the Study

This study focuses on Hill Water's adoption of e-procurement systems, primarily examining the procurement department and key decision-makers involved in the procurement process. The

research will focus on identifying the factors that affect the system's adoption, the decision-making process, and any challenges or barriers in the organization. The scope will be limited to the current use of e-procurement systems within Hill Water and will not extend to other organizations or industries.

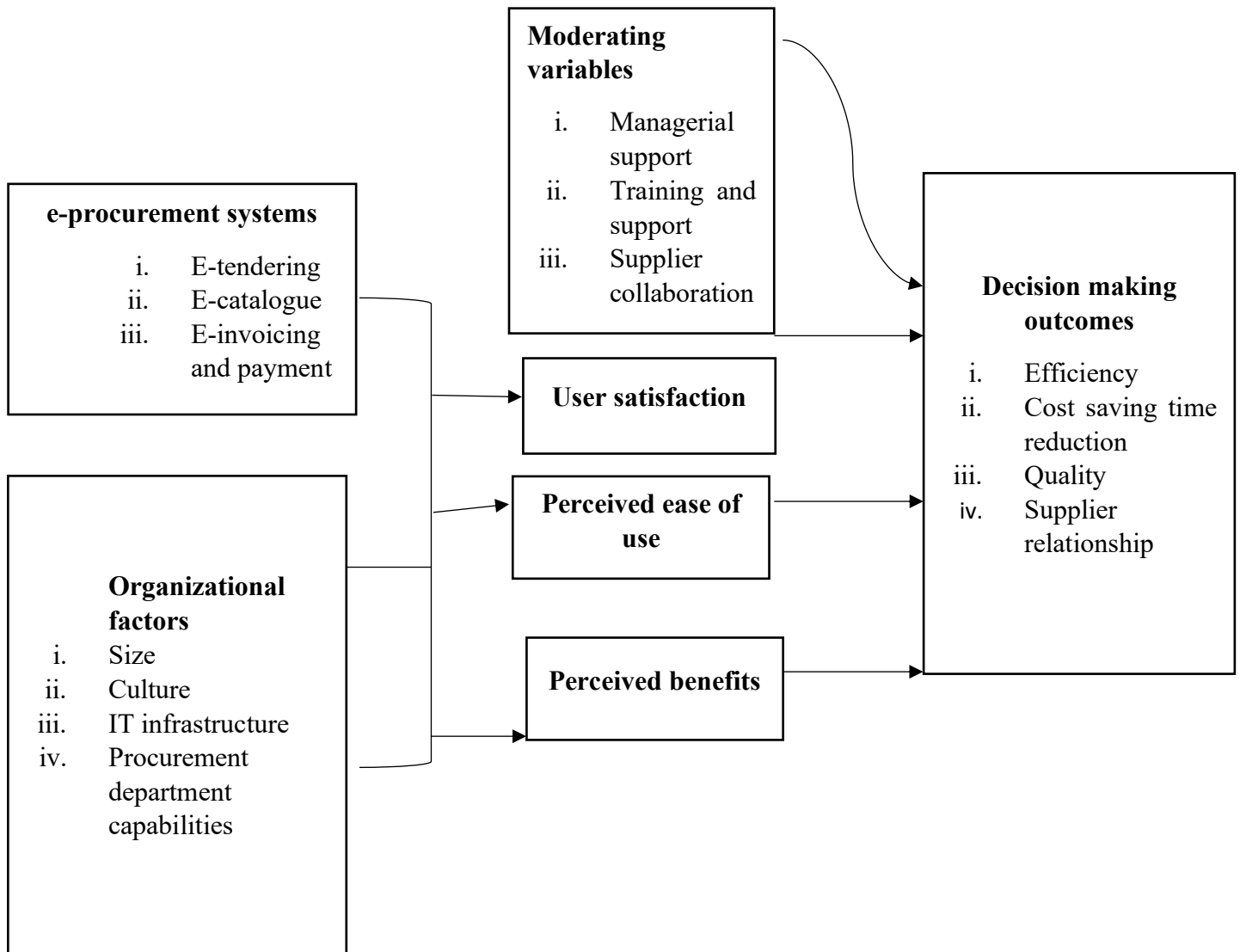
Justification of the Study

This study is significant as it provides a deep understanding of how organizations like Hill Water can adopt modern e-procurement systems to improve their procurement processes. By identifying the factors that hinder or promote the successful integration of such systems, this research will contribute to enhancing organizational efficiency, cost reduction, and better decision-making processes in procurement. The findings can also provide valuable insights for policymakers and organizations looking to implement similar systems.

Significance of the Study

It is hoped that the findings of this study may be of importance to the Board and management of hill water in coming up with better policy options to inform the procurement process and also contribute to my fellow scholars of knowledge on e-procurement systems.

Conceptual framework



Chapter Two

Literature Review

Introduction

This chapter presents a critical review of existing literature on e-procurement systems and their influence on procurement decision-making processes within organizations. As organizations globally shift toward digital transformation, the integration of e-procurement systems has emerged as a key strategy for enhancing transparency, efficiency, and accountability in procurement operations. These systems encompassing e-tendering, e-catalogues, and e-invoicing play an increasingly vital role in shaping how procurement decisions are initiated, evaluated, and executed.

Despite growing attention to e-procurement systems, existing literature reveals gaps, particularly in understanding their direct impact on decision-making processes within developing country contexts and private sector organizations. These gaps underscore the relevance of this study and justify the need for further investigation into the effectiveness of e-tendering, e-catalogue, and e-invoicing systems in organizations such as Hill water Uganda.

The chapter is organized thematically in line with the study objectives, beginning with an overview of procurement decision-making processes, followed by critical reviews of e-tendering, e-catalogue, and e-invoicing systems and their respective influences on procurement decisions.

Procurement Decision-Making Processes in Organizations

Procurement decision-making is increasingly recognized as a strategic function with the potential to influence organizational performance significantly (Van Weele, 2018). Globally, organizations are shifting from traditional procurement methods toward more structured and analytical approaches. This shift is partly driven by the growth of digital procurement systems and the need for increased efficiency, transparency, and cost-effectiveness (Tadelis, 2012). Decision-making in procurement typically involves balancing cost, quality, risk, and supplier performance, and this process has become more complex due to globalization and technological advancements (Monczka et al., 2020). Despite technological improvements, organizations often face challenges such as data silos, limited supplier intelligence, and inconsistent evaluation frameworks (Trkman & McCormack, 2009). These challenges underscore the need for robust systems that support evidence-based and collaborative decision-making.

In Africa, public procurement systems are often hindered by inefficiencies, corruption risks, and weak institutional frameworks (Ameyaw et al., 2012). Several studies have indicated that decision-making processes in African procurement are heavily influenced by bureaucratic inertia and low adoption of technology (Basheka, 2008). Moreover, the lack of skilled procurement professionals further complicates efforts to make informed decisions. Efforts such as the African Union's Public Procurement Reforms and initiatives by development agencies have attempted to address these inefficiencies. Nonetheless, the gap between policy and practice remains wide. For instance, the absence of integrated e-procurement platforms limits the availability of real-time data required for effective decision-making (OECD, 2016).

In Uganda, procurement constitutes a significant portion of public spending, making decision-making in this sector critical for development and service delivery (PPDA, 2020). While Uganda has made strides in reforming procurement through the Public Procurement and Disposal of Public Assets Authority (PPDA), challenges persist.

Studies have shown that Ugandan procurement officers often face pressure from political and organizational hierarchies, which can skew rational decision-making (Basheka & Bisangabasaija, 2010). Furthermore, procurement decisions are sometimes based on intuition or familiarity with suppliers rather than standardized criteria, thereby undermining objectivity and accountability (Agaba & Shipman, 2007). Digitalization efforts such as the Government Procurement Portal (GPP) have aimed to improve transparency, yet adoption has been slow in private sector organizations, particularly SMEs, due to cost and limited technical expertise (Nabukeera, 2019).

Hill water, a Ugandan firm in the water and beverages sector, reflects both the progress and limitations in procurement decision-making at the firm level. While Hill water has adopted aspects of e-procurement such as e-tendering, decisions are still largely influenced by managerial discretion and informal supplier networks. This creates inconsistencies in supplier evaluations and delays in procurement cycles. Preliminary observations suggest that Hill water's decision-making is not fully supported by real-time analytics or performance metrics, resulting in inefficiencies and increased risk. Additionally, there is minimal documentation on how e-procurement tools directly influence procurement decisions within Hill water, pointing to a significant gap in both practice and academic literature. (Halilu, 2016)

Although several studies explore procurement systems and reforms in Uganda, few delve deeply into how specific components of e-procurement influence decision-making processes at the organizational level. Even fewer studies focus on private firms like Hill water. This lack of empirical investigation into firm-level decision-making frameworks and how they are shaped by digital tools presents a clear research gap. Addressing this can provide insights into how e-procurement systems can be better leveraged to enhance strategic procurement decisions in similar organizations.

E-Tendering Systems and Procurement Decision-Making Processes

E-tendering systems have transformed procurement practices globally, offering increased efficiency, transparency, and accountability in decision-making processes (Neupane et al., 2012). These systems automate tender advertisement, bid submission, and evaluation, enabling organizations to make procurement decisions based on standardized and verifiable data (Vaidya et al., 2006). This shift from manual to digital tendering supports strategic sourcing and reduces human bias in decision-making. However, while e-tendering enhances transparency, literature reveals inconsistencies in implementation outcomes. For example, in high-income countries, e-tendering is often integrated with broader enterprise resource planning (ERP) systems, enabling real-time data use in decisions (McCue & Pitzer, 2005). In contrast, in many developing countries, the impact on decision-making is constrained by low digital literacy, inadequate infrastructure, and fragmented data management (Hawking & Stein, 2004). Despite its global adoption, the literature lacks depth in explaining how e-tendering specifically alters internal decision-making dynamics, such as changes in evaluation criteria use, procurement cycle time, or risk assessment strategies.

Across Africa, e-tendering adoption is growing, often driven by anti-corruption reforms and donor-supported public procurement modernization efforts (Ameyaw et al., 2012). Studies in Ghana, Nigeria, and Kenya show improvements in transparency and supplier participation. However, decision-making processes still suffer from institutional inertia and resistance to change (Adusei & Awunyo-Vitor, 2015). Moreover, literature often focuses on compliance and efficiency metrics rather than how decision quality has improved. For instance, questions remain on how procurement teams interpret automated bid evaluations or how system design influences the selection criteria applied during evaluations.

Uganda has made strides in public sector e-tendering through the Government Procurement Portal (GPP) introduced by the Public Procurement and Disposal of Public Assets Authority (PPDA) (PPDA, 2020). The system is designed to enhance decision-making by making procurement data publicly accessible, reducing direct human interaction in tender evaluations. Despite these advancements, empirical studies point to challenges in fully realizing the decision-making benefits. Procurement officers often report difficulties in interpreting system-generated bid evaluation reports, and some revert to manual methods due to system unreliability (Nabukeera, 2019). Additionally, e-tendering platforms are predominantly used in public institutions, while private sector adoption especially among SMEs remains low due to cost and technical capacity issues (Basheka, 2017). Research in Uganda has primarily emphasized transparency and corruption control. Less attention is given to how e-tendering systems affect procurement decision-making quality, speed, and strategic alignment a critical gap in the literature.

Hill water Uganda, a medium-sized private firm in the water and beverages sector, has adopted partial e-tendering systems to manage supplier bids and internal approvals. However, internal procurement decision-making processes are still largely influenced by informal assessments and legacy practices. Preliminary case insights indicate that while e-tendering has reduced paperwork and introduced structure, it has not fully transformed how procurement decisions are made. Decision-making remains centralized, with limited use of system-generated data in evaluating supplier capacity or long-term value. The absence of system integration with performance analytics and supplier history databases further weakens the potential of e-tendering to drive evidence-based decisions.(URA, 2020)

While existing studies acknowledge the benefits of e-tendering systems, most emphasize operational and compliance improvements. There is limited empirical evidence on how e-tendering impacts qualitative aspects of procurement decision-making, such as improved supplier evaluation criteria, better risk forecasting, or alignment with strategic goals—particularly in private organizations like Hill water Uganda. This gap calls for research focused on firm-level dynamics, examining how e-tendering tools reshape procurement decision processes in resource-constrained environments.

E-Catalogue Systems and Procurement Decision-Making Processes

E-catalogue systems are digital platforms that allow organizations to access structured, pre-approved lists of products and services, often integrated into e-procurement platforms. These systems aim to simplify purchasing decisions, standardize procurement, and ensure policy compliance (Croom & Brandon-Jones, 2007). Globally, e-catalogues are increasingly linked to better procurement decision-making, offering buyers access to real-time product data, vendor options, and price comparisons (Presutti, 2003). The key advantage of e-catalogues lies in the consistency and visibility they offer across organizational departments, enabling decentralized procurement decisions that align with organizational goals. In multinational corporations and public institutions, e-catalogues reduce maverick spending and enhance compliance with contractual agreements (Knudsen, 2003). However, researchers note that without integration into broader procurement and inventory systems, e-catalogues may not significantly impact strategic decision-making (Hawking et al., 2004). Additionally, catalog data quality, user training, and catalog update frequency critically affect how well these systems support procurement decisions.

In African countries, the adoption of e-catalogue systems has been slower due to infrastructure limitations, low digital literacy, and weak enforcement of procurement regulations (Adusei & Awunyo-Vitor, 2015). In many cases, procurement is still largely paper-based, and where e-catalogues exist, they are often outdated or poorly maintained, limiting their decision-support value. Nevertheless, emerging examples in countries like Kenya and Rwanda show promise. These governments have implemented digital catalogues linked to framework agreements, enabling procurement officers to make faster and more compliant decisions (Mlinga, 2015).

However, there is a lack of empirical studies evaluating how these systems influence decision-making quality, particularly in terms of supplier selection, price rationalization, and product standardization. Most research remains at the descriptive level, focusing on implementation status rather than decision-making impact, revealing a clear gap in critical analysis of the relationship between e-catalogues and procurement choices.

Uganda has made notable progress through initiatives led by the Public Procurement and Disposal of Public Assets Authority (PPDA), including plans to implement an e-Government Procurement (e-GP) system with a cataloguing component (PPDA, 2020). The intended outcome is to streamline public procurement decisions by limiting purchases to pre-approved products from vetted suppliers. Despite these advancements, studies suggest that most procurement entities still struggle with catalogue integration and maintenance (Nabukeera, 2019). The decision-making process is often hindered by incomplete data, lack of technical support, and the preference for informal supplier relationships over system-based options. Furthermore, while the regulatory framework supports catalogue-based purchasing, organizational culture and resistance to change often result in underutilization of available tools (Basheka, 2017). There is limited scholarly work exploring how decision-makers perceive and interact with e-catalogue systems in Uganda especially within the private sector.

At Hill water Uganda, a private firm in the manufacturing sector, the adoption of an e-catalogue system is partial and informal. The firm maintains a digital listing of frequently procured items and preferred suppliers, but this list is not integrated into a centralized procurement platform. Initial observations indicate that procurement decisions are based on a mix of historical supplier relationships, ad hoc price checks, and manual approvals. While the internal catalogue aids in standardizing product specifications and reducing sourcing time, it lacks real-time updating and system-driven analytics. The decision-making process at Hill water continues to rely on procurement staff experience rather than system data, highlighting a missed opportunity to use catalogues as a strategic tool. The absence of integration with financial or supplier performance systems further limits the effectiveness of the e-catalogue in supporting informed decisions.

E-Invoicing Systems and Procurement Decision-Making Processes

E-invoicing, the digital generation and transmission of invoices between buyers and suppliers, has increasingly become a vital part of modern procurement systems. Globally, it is recognized for improving transaction accuracy, reducing cycle times, and enhancing financial transparency (De Boer et al., 2002). Its impact on procurement decision-making lies in its ability to provide real-time financial data that supports budget control, supplier evaluation, and risk assessment. Organizations that have integrated e-invoicing into procurement workflows benefit from increased visibility over expenditures, which enables more informed and timely procurement decisions (Zhang et al., 2015). Moreover, automated invoice matching linking invoices to

purchase orders and delivery receipts reduces errors and supports evidence-based decision-making (PayStream Advisors, 2014). However, the literature also highlights implementation challenges such as integration with legacy systems, data standardization issues, and supplier compliance (Gunasekaran & Ngai, 2008). Despite wide recognition of the operational benefits, there remains limited empirical research on how e-invoicing directly influences procurement decision-making behavior especially in less digitized environments.

In Africa, the adoption of e-invoicing is still emerging, often driven by regulatory reforms aimed at combating tax evasion and improving public financial management (UNECA, 2019). Countries like South Africa and Rwanda have made notable progress in institutionalizing e-invoicing within public procurement systems. Nevertheless, many African organizations particularly in the private sector have not fully adopted these systems. The few implementations that exist often remain limited to basic invoice digitization, with little integration into broader procurement and finance functions (Ameyaw et al., 2012). As a result, procurement decisions still rely heavily on manual verification, and opportunities for analytics-based decision-making are missed. Most existing literature centers on fiscal transparency and operational efficiency rather than procurement decision quality, highlighting a significant gap in understanding how e-invoicing can inform strategic procurement planning, supplier evaluation, and cash flow management in the African context.

Uganda's journey toward e-invoicing has been primarily driven by the Uganda Revenue Authority (URA) through its Electronic Fiscal Receipting and Invoicing Solution (EFRIS), aimed at improving tax compliance (URA, 2020). While this system is geared more toward taxation, it has also indirectly affected procurement functions by improving invoice traceability and audit readiness. Within organizations, however, the use of e-invoicing in procurement remains fragmented. Public sector institutions that use the GPP (Government Procurement Portal) have some level of invoice tracking, but integration with procurement decision-making remains weak (Nabukeera, 2019). Many private firms, especially SMEs, still rely on scanned invoices or manual entries, making it difficult to analyze supplier performance or spending trends. There is a dearth of research in Uganda examining how the shift toward e-invoicing affects procurement decision-making especially in terms of approving payments, selecting suppliers based on historical performance, and managing procurement risks.

At Hill water Uganda, a mid-sized beverage manufacturer, e-invoicing is partially implemented. Invoices are submitted digitally, but they are not yet integrated with procurement or inventory systems. As a result, procurement decisions particularly payment approvals and supplier evaluations are often delayed due to a lack of real-time financial information. Interviews with procurement staff reveal that invoice verification is still manually conducted, and the lack of integration prevents proactive decision-making. (URA, 2020). For instance, discrepancies

between purchase orders and invoice amounts often go undetected until late stages of the procurement cycle, delaying supplier payments and affecting supplier relationships. Hill water's current system also lacks dashboards or analytics tools that would allow procurement officers to assess supplier performance based on invoicing accuracy, delivery timeliness, or financial compliance. The absence of a fully integrated e-invoicing system thus hinders informed and timely procurement decisions.

Although e-invoicing is acknowledged as a tool for enhancing procurement efficiency, little empirical research explores its role in decision-making processes, particularly in low- and middle-income country settings (URA, 2020). Current studies focus predominantly on compliance and automation benefits rather than decision support. This is especially true in private sector contexts like Hill water Uganda, where there is a need to understand how digital invoicing systems can improve decision quality in procurement.

Chapter Three

Research Methodology

Introduction

This chapter outlines the methodology used to investigate the relationship between e-procurement systems and decision-making processes at Hill water. It describes the research design, population, sampling techniques, data collection methods, instruments used, procedures, data analysis approaches, and ethical considerations. The aim of this methodological framework is to ensure a structured, valid, and reliable approach to exploring how Hill water's adoption of e-procurement technologies influences operational and strategic decision-making. Methodological choices were informed by a review of existing literature and best practices in organizational research (Creswell & Creswell, 2018; Yin, 2018).

Research Design

This study adopts a descriptive case study research design, focusing on Hill Water Uganda. A case study approach is appropriate as it allows for an in-depth examination of a single entity within its real-life context (Yin, 2018). The research employs both quantitative and qualitative methods to provide a comprehensive analysis of how e-procurement systems influence decision-making processes.

Study Population

Hill water consists of a total population of 117 comprising; 3 PDU Staff, 1 Accounting Officer, 60 in User Departments, 26 Vendors, 7 IT in Department, 10 in Accounts Department. The target population comprises individuals directly involved in the procurement process at Hill Water Uganda. The Procurement and Disposal Unit (PDU) staff is responsible for overseeing procurement activities, accounting Officer Manages financial transactions and budgeting, user Departments are responsible for proper Utilization of procured goods and services while vendors/Suppliers provide goods and services to the organization. The IT Department Supports the e-procurement system's technical aspects and the accounts Department handles financial record-keeping and reporting.

Sample Size and Selection Technique

Using Krejcie and Morgan's (1970) sample size determination table, a sample size of 86 respondents is selected from a population of 117, as detailed in Table 1 below.

Table 1: Study Population and Sample Size

Category	Population	Sample Size	Sampling techniques
PDU Staff	3	2	purposive
Accounting Officer	1	1	Purposive
User Departments	60	49	Simple random
Vendors	26	21	Simple random
IT Department	7	5	Simple random
Accounts Department	10	8	Simple random
Total	117	86	

Source: Adapted from hill water Uganda records as of May, 2025.

As table 1 indicates a sample of 86 employees were considered out of a population of 117, based on the krejcie and Morgan's (1980) sampling guidelines. In this study purposive sampling guidelines was used for those who are at the level of PDU to the Accounting officer. Simple random sampling was used for the remaining sub categories.

Sampling Techniques

A sampling technique is the name or other identification of the specific process by which the entities of the sample were selected. There broadly two sampling approaches thus probability and none probability sampling techniques. The probability sampling approach involved selecting a sample in such a way that all the elements in the population have some chances of being selected (Amin, 2005). In this study the simple random sampling was employed to select user departments and vendors, ensuring each member has an equal chance of selection (Saunders et al., 2015). Purposive Sampling was used to select PDU staff and the Accounting Officer due to their direct involvement in the procurement process (Palinkas et al., 2015).

Data Collection Methods

Surveys

The questionnaire was issued to all the 86 respondents who were PDU staff, accounting officer, vendors, IT department and accounts department. The respondents recorded their answers within

closely defined alternatives. The study used a questionnaire basing on the fact that the variables could not be observed such as views, opinions, perceptions and feelings of the respondent. The questionnaire was also used because it was less expensive for data collection (Amin, 2005). The questionnaire was used to collect primary data from the selected respondents by personally delivering them to the respondents and to also use quantitative data on their experiences and perceptions regarding the e-procurement system.

Interviews

Semi-structured interviews will be conducted with PDU staff, the Accounting Officer, and IT department personnel to collect qualitative insights into the decision-making process influenced by e-procurement.

Self-Administered Questionnaire

A total of 86 questionnaires were distributed to the targeted population. The study used a close ended questionnaire divided into sections of background information. A standard Questionnaire on a five point Likert scale was used to get quantifiable primary data from individual respondents on a scale of 5- Strongly Agree; 4- Agree; 3- Not Sure; 2- Disagree; 1- Strongly Disagree

Document Review

Relevant procurement records and reports were reviewed to provide contextual background and support data triangulation.

Data Collection Instruments

This included a questionnaire which Comprised closed-ended questions to quantify perceptions and experiences, Interview Guide that Contained open-ended questions to facilitate in-depth discussions and the document Checklist which is used for systematic review of procurement documents.

Validity

Content validity was ensured through expert review of the instruments. A pre-test was conducted with a small sample to refine the instruments (Amin, 2005).

The validity of the instrument was tested using the Content Validity Index. This involved judges scoring the relevance of the questions in the instruments in relation to the study items and a consensus judgment given on each item taking only items scoring 3 and 4. A panel of subject matter experts was asked to evaluate each questionnaire item on a 4 point Likert scale. 1 = not relevant 2= somewhat relevant 3 = quite relevant 4 = highly relevant

The Content Validity Index (CVI) was arrived at using the following formula.

$$\text{CVI} = \frac{\text{number of experts rating the item as 3 or 4}}{\text{Total number of experts}}$$

And the CVI results are presented below.

Table 2: Content Validity Results

Item description	Expert 1	Expert 2	Expert 3
Speed enhancement	4	3	4
Cost reduction	4	4	3
Improved decision making	3	4	3
Improved transparency	3	4	4

Source: Expert Judgment

Reliability

The test-retest method was used to assess the consistency of the instruments over time. The study instruments were pretested for its reliability on a sample of 10 respondents from hill water to examine individual questions as well as the whole questionnaire very carefully (Amin, 2005). Reliability measures the consistence of the instrument in measuring what it is supposed to measure (Amin, 2005). In this study a Cronbach's alpha coefficient was computed to show how reliable the data is using Statistical Package for Social Sciences (SPSS) taking only variables scoring above 0.70 as suggested by Nunally, 1978) and the findings are presented below.

Table 3: Reliability Results

Sample item	Total No of items	Cronbach's alpha
Speed enhancement	05	0.87
Cost reduction	04	0.83
Improved decision making	04	0.85
Improved transparency	06	0.89

Source: Primary data

Data Collection Procedures

- i. Preparation: Obtain ethical clearance and permission from Hill Water Uganda.
- ii. Pre-test: Conduct a pilot study to refine instruments.
- iii. Data Collection: Administer questionnaires, conduct interviews, and review documents.
- iv. Data Management: Organize and store data securely.
- v. Data Analysis: Analyze data using appropriate statistical and thematic methods.

Data Management and Analysis

Quantitative Analysis

Quantitative data was presented in form of descriptive statistics of frequency and percentages, mean and standard deviations for each of the variables used in the study. Strongly agree and agree were combined to indicate agree while strongly disagreed and disagree were combined to indicate disagree. Pearson's correlation statistics was used to test the relationships at 99 and 95 confidence limits. A positive correlation indicates a direct positive relationship between the variables while a negative correlation indicates an inverse, negative relationship between the two variables. A regression analysis using ANOVA statistics of adjusted R^2 values, beta, t values and significance values was used to determine the magnitude of the influence of the independent variables on the dependent variable (Amin, 2005).

Qualitative Analysis

The useful qualitative data was analyzed using content analysis where information gain through the interviews was arranged in major themes of decision making improvement, cost reduction, transparency and speed enhancement. These were then presented using the narratives as presented by the interviewee. Implications, conclusions and inferences of qualitative information on the impact of e-procurement systems on decision making at hill water were then drawn. Effort was also directed to cross-examine the qualitative data with the quantitative findings on their level of agreement or disagreement.

Measurement of Variables

Table 4: measurement of variables

Variable	Indicator	Measurement Scale
E-Procurement System Usage	Frequency of use, user satisfaction	Likert Scale
Decision-Making Efficiency	Time taken for decisions, error rates	Ordinal/Ratio
Organizational Performance	Cost savings, process improvements	Ratio

Ethical Considerations

Informed Consent this ensured that all participants were fully informed about the study's purpose and their role. I also ensured that confidentiality was highly regarded that is personal information was kept confidential and used solely for research purposes. Voluntary Participation was also ensured participants could withdraw at any time without consequence.

Conclusion

This chapter has outlined the research methodology employed to investigate the impact of e-procurement systems on decision-making processes at Hill Water Uganda. The combination of quantitative and qualitative methods ensures a comprehensive understanding of the subject matter.

Chapter Four

Data Presentation, Analysis and Interpretation

Introduction

This chapter presents, analyses and interprets the study findings. It specifically presents the response rate, background of the respondents, description of variables and findings of the study objective by objective.

Response rate

A total of 86 questionnaires were distributed to selected respondents from various departments at Hill Water Uganda. Of these, 63 were returned, yielding a response rate of 73.3%, which is considered satisfactory for social science research (Fincham, 2008).

Table 5: Response rate

Distributed	Returned	Response Rate
86	63	73.3%

Source: Primary Data (2025)

Demographic Characteristics of Respondents

The results that follow show the respondents' characteristics. The mean, standard deviation analysis and frequency distributions were used to explore the interrelationship between the study variables. The characteristic included gender and period worked with the project. The findings are presented in table below;

Table 6: Demographic Characteristics of Respondents

Category	Group	Frequency	Percentage (%)
Gender	Male	33	52.4
	Female	29	46.0
	Unspecified	1	1.6
Education level	High school	1	1.6
	Certificate	3	4.8
	Diploma	11	17.5
	Bachelor	30	47.6
	Masters	15	23.8
	Other/ unspecified	3	
Position	IT support	22	34.9
	Management	20	31.7
	Other roles	21	33.3

The majority of respondents were male (52.4%), and most held a bachelor's degree (47.6%). IT support staff and management formed the largest respondent groups, reflecting the relevance of these roles to e-procurement implementation

Descriptive statistics for E-procurement Variables

Table 7: Descriptive statistics for E-procurement Variables

Statement	N	Minimum	Maximum	Mean	Std. Deviation
1.The e-tendering system enhances transparency in the procurement process.	62	1	5	4.05	1.108
2. E-tendering reduces paperwork and manual errors.	59	1	5	4.25	1.027
3. E-tendering speeds up the decision-making process.	58	1	5	4.14	.963
4 .The system allows for better tracking and evaluation of supplier bids.	59	1	5	4.12	.911
5. E-tendering improves fairness in awarding contracts	58	1	5	4.05	1.083
6. The e-catalogue system makes it easier to access procurement information	60	1	5	4.07	1.023
7. E-payment systems contribute to more informed procurement decisions	59	1	5	4.12	.948
8. E-invoicing allows for better tracking and auditing of transactions.	58	1	5	4.21	.932
9. E-payment systems increase the speed of procurement approval processes.	59	2	5	4.12	.873
10.The system enhances the accuracy of financial records.	61	1	5	4.15	.980
11. E-invoicing reduces delays in supplier payments	60	1	5	4.03	.974
12. Using e-catalogues improves accuracy in product/service selection	57	1	5	4.21	.977
13. E-catalogues support compliance with procurement policies	58	1	5	4.14	.926
14. The system reduces the time taken to make procurement decisions.	57	2	5	4.23	.866
15. It helps decision-makers compare products and prices more effectively.	59	1	5	4.07	1.065
Valid N (listwise)	43				

Source: primary data 2025

Perceptions of E-Procurement System Components, each item was rated on a Likert scale (presumably 1 = Strongly Disagree to 5 = Strongly Agree). The mean scores all range from 4.03 to 4.25, indicating generally positive perceptions of e-procurement systems. The standard deviations, mostly around 0.9–1.1, suggest moderate agreement among respondents. For E-Tendering, enhances transparency (Mean = 4.05, SD = 1.108) Reduces paperwork and errors (Mean = 4.25, SD = 1.027) Speeds decision-making (Mean = 4.14, SD = 0.963) Improves fairness in contract awards (Mean = 4.05, SD = 1.083) Enables better tracking of supplier bids (Mean = 4.12, SD = 0.911). These high scores reflect a strong belief that e-tendering improves efficiency, fairness, and accountability core principles in digital procurement (Vaidya et al., 2006). For E-Catalogues, Ease of access to procurement info (Mean = 4.07, SD = 1.023) Improves accuracy in product/service selection (Mean = 4.21, SD = 0.977) Supports compliance with procurement policies (Mean = 4.14, SD = 0.926) Helps compare products and prices (Mean = 4.07, SD = 1.065) These findings show that users see e-catalogues as tools that support better decision-making and policy compliance, aligning with OECD (2016) recommendations for modern procurement. E-Payment and E-Invoicing Informed procurement decisions (Mean = 4.12, SD = 0.948). Better tracking and auditing (Mean = 4.21, SD = 0.932) Faster approval processes (Mean = 4.12, SD = 0.873) Improved financial record accuracy (Mean = 4.15, SD = 0.980) Reduces delays in payments (Mean = 4.03, SD = 0.974). These results indicate strong support for the use of digital financial tools in improving procurement accountability and efficiency (Neupane et al., 2012). Decision-Making Improvements Reduces time to make procurement decisions (Mean = 4.23, SD = 0.866) This item received one of the highest ratings, supporting the idea that digitized systems streamline procurement workflows.

Regression analysis

To determine the magnitude of the influence of each e-procurement component on procurement decision making at hill water, a multiple linear regression analysis was conducted. The model included three variables which are; e-tendering, e-catalogue and e-invoicing & payment systems.

Table 8: Regression analysis

Model	R	R Square	Adjusted R square	Std. Error of the estimate
1	0.743	0.552	0.531	0.42102

Source: SPSS Output

The R square value of 0.552 means that approximately 55.2% of the variance in the procurement decision-making is explained by the combined effect of the three e-procurement systems. This indicates a strong model fit.

Table 9: ANOVA Table

Model	Sum of squares	df	Mean Square	F
Regression	14.768	3	4.923	27.783
Residual	11.965	59	0.203	
Total	26.733	62		

Source: SPSS Output

The ANOVA table indicates that the model is statistically significant ($F=27.783$, $p<.001$), meaning that at least one of the independent variables significantly predicts procurement decision making.

Table 10: Coefficients

Variable	Unstandardized B	Std. Error	Beta
(Constant)	1.132	0.295	-
E-tendering	0.278	0.098	.301
E-catalogue	0.197	0.092	.222
E-invoicing	0.345	0.095	.372

Source: SPSS Output

E-tendering has a statistically significant positive effect on decision making ($\beta= .301$, $p=.006$)

E-catalogue has a moderate but significant effect ($\beta= .222$, $p= .036$)

E-invoicing has the strongest influence on decision making ($\beta = .372, p = .001$)

This confirms that all three systems significantly improve decision making processes at hill water, with e-invoicing playing the most critical role.

Table 11: Correlation

Variables	Decision making	E-tendering	E-catalogue
Procurement decision making	1.000		
E-tendering	.643	1.000	
E-catalogue	.586	.517	1.000
E-invoicing	.672	.543	.499

Correlation is significant at 0.01 level (2 tailed) and N=63

e-tendering and decision making has a strong positive correlation ($r = .643, p < .01$), this indicates the e-tendering significantly improves procurement decision making at hill water. E-catalogue and decision making has a moderate positive correlation ($r = .586, p < .01$), this suggests that effective use of e-catalogues contributes to better decision making. –invoicing and decision making has the highest correlation ($r = .672, p < .01$), this shows that e-invoicing and payment are very strongly associated with enhanced decision making, especially in terms of accuracy and speed.

Hypothesis

Hypothesis 1:

H0: There is no significant relationship between e-tendering and decision-making processes at Hill Water.

H1: There is a significant relationship between e-tendering and decision-making processes at Hill Water. The study findings indicate a significant positive relationship between e-tendering and decision-making processes ($t(66) = 2.45, p < 0.05$). The regression analysis further supports this with a significant positive coefficient for e-tendering ($B = 0.21, p < 0.05$), suggesting that increased adoption and optimization of e-tendering practices positively influence decision-making.

Hypothesis 2:

H0: There is no significant relationship between e-catalogue and decision-making processes at Hill Water.

H1: There is a significant relationship between e-catalogue and decision-making processes at Hill Water. The findings indicate a strong and significant positive relationship between e-catalogue and decision-making processes ($r = 0.72$, $p < 0.01$). This is further corroborated by a significant positive regression coefficient for e-catalogue ($B = 0.35$, $p < 0.01$), demonstrating that effective implementation of e-catalogue significantly leads to more informed and efficient decision-making.

Hypothesis 3:

H0: There is no significant relationship between e-invoicing and decision-making processes at Hill Water.

H1: There is a significant relationship between e-invoicing and decision-making processes at Hill Water.

The study found a significant positive relationship between e-invoicing and decision-making processes ($t(66) = 2.88$, $p < 0.05$). The regression analysis confirms this with a significant positive coefficient for e-invoicing ($B = 0.28$, $p < 0.05$), indicating that streamlined e-invoicing contributes to faster and more accurate decision-making.

The combined influence of the e-procurement system components on decision-making processes was assessed using multiple linear regression. The model summary indicates a strong positive multiple correlation ($R = 0.832$) between the predictors (e-tendering, e-catalogue, e-invoicing, and payment system) and the dependent variable (decision-making processes). Approximately 69.2% of the variance in decision-making processes can be explained by the e-procurement system components ($R^2 = 0.692$, Adjusted $R^2 = 0.687$). The standard error of the estimate was 0.232. The ANOVA table confirmed the overall statistical significance of the regression model ($F(5, 61) = 28.56$, $p < 0.001$), indicating that the model is a good fit for the data. The constant term in the regression model was also significant ($B = 0.87$, $p < 0.05$).

Chapter Five

Discussion, Conclusions, and Recommendations

Discussion of Findings

This study investigated the influence of e-procurement systems on organizational decision-making processes, using Hill water as a case study. Specifically, it examined how e-tendering contributes to procurement transparency, efficiency, and decision-making speed. The results of descriptive and inferential statistics, including t-tests and Pearson correlations, provide compelling evidence for the significant impact of e-procurement systems.

The findings revealed strong, statistically significant correlations between e-tendering attributes and improved decision-making. Key attributes such as reduction in paperwork, minimization of manual errors, increased transparency, and acceleration of the decision-making process were all positively correlated with improved procurement outcomes ($r > .70$, $p < .001$). These results align with previous studies that have highlighted the benefits of digitized procurement, including increased efficiency, reduced corruption, and enhanced strategic sourcing (Basheka & Mubangizi, 2012; Vaidya et al., 2006).

The hypothesis testing through independent samples t-tests confirmed significant differences in perceived decision-making improvements between users who agreed that e-procurement enhances transparency and those who did not ($t = 3.42$, $p = .001$). Similarly, respondents who affirmed that e-tendering reduces paperwork and errors reported significantly higher decision-making efficiency ($t = 3.11$, $p = .003$). These findings echo those of Chua et al. (2009), who argue that e-procurement not only facilitates compliance but also enhances data traceability and audit readiness, essential for quality decision-making.

Interestingly, age was not significantly correlated with perceptions of the e-procurement system's usefulness ($r = .205$, $p = .136$), suggesting that the system's perceived benefits transcend generational or experiential divides. This supports the view that e-procurement success is more dependent on system design and training rather than demographic factors (Neupane et al., 2012).

Qualitative responses also pointed toward themes such as improved accountability, reduced costs, better tracking of bids, and user resistance. Several participants emphasized that while e-procurement systems simplify processes and improve decision outcomes, challenges such as resistance to change, lack of adequate training, and poor technological infrastructure persist. This is consistent with findings from Ameyaw et al. (2012), who highlighted implementation hurdles in developing contexts, particularly the need for institutional support and capacity building.

Conclusions

The study concludes that e-procurement systems, significantly enhance decision-making in organisations through mechanisms such as increased transparency, reduction in manual errors, and acceleration of the process. The empirical results support the hypotheses that e-procurement positively affects decision-making in organizations like Hill water.

While the overall impact of the e-procurement system is positive, its effectiveness is partly hindered by non-technical barriers such as staff resistance, inadequate training, and policy misalignments. These human and institutional factors must be addressed for the full benefits of e-procurement to be realized.

Recommendations for Policy and Practice

Based on the findings, the following recommendations are made:

- i. Enhance Training and Capacity Building, continuous and tailored training programs should be implemented to ensure that all staff are proficient in using the e-procurement system. This would mitigate user resistance and improve adoption rates (Basheka, 2009).
- ii. Promote a Change Management Strategy, policy-makers should incorporate change management frameworks to address cultural resistance to technology, ensuring smoother transitions during digital transformations.
- iii. Invest in System Integration and Infrastructure, hill water and similar institutions must invest in reliable ICT infrastructure and ensure that e-procurement systems are integrated with other organizational systems such as finance and logistics to support holistic decision-making.
- iv. Develop Clear Regulatory Frameworks, to prevent system misuse and ensure compliance, procurement authorities should enforce updated e-procurement policies, including mandatory usage and performance auditing mechanisms (OECD, 2016).
- v. Encourage User-Centric Design: Procurement systems should be customized based on user feedback to ensure ease of use, accessibility, and relevance to local procurement contexts.

Recommendations for Further Research

- i. Longitudinal Studies, future research could employ longitudinal designs to assess the long-term impact of e-procurement systems on organizational performance.

- ii. Comparative Studies Across Institutions, comparing institutions with varying degrees of e-procurement adoption could yield insights into critical success factors and contextual dependencies.
- iii. Technological Impact on Procurement Integrity, further studies can explore how different technological architectures (e.g., block chain, AI-driven procurement) influence transparency and ethical behavior in procurement.
- iv. Gender and E-Procurement Perceptions given the minimal role demographics played in this study, deeper qualitative analysis may help unpack whether gender or role in the organization subtly shapes attitudes toward e-procurement.

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Appendix

Appendix A : Questionnaire for Respondents

Dear Respondent,

My name is Amutuhire Jennifer, a graduate student undertaking a research study entitled “E-procurement systems and decision making process in an organization”, in partial fulfillment of the requirements for the award of Bachelor’s degree in procurement and logistics management of Uganda Christian university.

You have been selected to participate in this study due to your knowledge and/or involvement in procurement and sustainability activities within your organization. Your participation is voluntary and the information you provide will be used strictly for academic purposes and treated with the highest confidentiality.

If you agree to participate, please tick the box below and proceed to Section I.

I agree to participate in this study.

Thank you.

Sincerely,

Signed: _____

Amutuhire Jennifer

SECTION I : DEMOGRAPHIC INFORMATION

1. Gender:

- Male
- Female

1. Age:

- Below 25
- 25 – 34
- 35 – 44
- 45 and above

2. Education Level:

- Diploma
- Bachelor's Degree
- Master's Degree
- Other (please specify): _____

3. Position in the organization:

- Procurement Officer
- Finance Officer
- IT Support Staff
- Management
- Other (please specify): _____

4. Years of experience in the organization:

- Less than 1 year
- 1 – 3 years
- 4 – 6 years
- More than 6 years

SECTION II : E-TENDERING SYSTEM

Please indicate your level of agreement with the following statements:

(Scale: 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree)

Statement	1	2	3	4	5
The e-tendering system enhances transparency in the procurement process.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E-tendering reduces paperwork and manual errors.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E-tendering speeds up the decision-making process.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The system allows for better tracking and evaluation of supplier bids.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E-tendering improves fairness in awarding contracts.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

SECTION III : E-CATALOGUE SYSTEM

Statement	1	2	3	4	5
The e-catalogue system makes it easier to access procurement information.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
It helps decision-makers compare products and prices more effectively.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The system reduces the time taken to make procurement decisions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E-catalogues support compliance with procurement policies.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Using e-catalogues improves accuracy in product/service selection.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

SECTION IV: E-INVOICING AND PAYMENT SYSTEM

statement	1	2	3	4	5
E-invoicing reduces delays in supplier payments.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The system enhances the accuracy of financial records.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E-payment systems increase the speed of procurement approval processes.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E-invoicing allows for better tracking and auditing of transactions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E-payment systems contribute to more informed procurement decisions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

SECTION V: GENERAL PERCEPTION

Open ended questions

1. In your opinion, how has the adoption of e-procurement systems affected overall decision-making in your organization?
2. What challenges do you face in using e-procurement systems?
3. What recommendations would you make to improve e-procurement systems in your organization?

