

# **EXPLORING THE ROLE OF ERP SYSTEMS IN ENHANCING PROCUREMENT PROCESS EFFICIENCY: A CASE STUDY OF NAKASERO HOSPITAL LIMITED**

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**DECLARATION**

I, Lavrick Juan Tunda declare that this research report is my original work and has not been presented in any other university or institution of learning

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**APPROVAL**

This research report has been prepared under my supervision and will be submitted to the school of business

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## ABBREVIATIONS

ERP: Enterprise Resource Planning

NHL: Nakasero Hospital Limited

PPDA: Public Procurement and Disposal of Public Assets

RBV: Resource-Based View

TAM: Technology Acceptance Model

PU: Perceived Usefulness

PEOU: Perceived Ease of Use

GDP: Gross Domestic Product

SPSS: Statistical Package for the Social Sciences

## Table of Contents

|  |     |
|--|-----|
| <b>DECLARATION</b> .....                             | ii  |
| APPROVAL .....                                       | iii |
| ACKNOWLEDGEMENT .....                                | iv  |
| ABBREVIATIONS .....                                  | v   |
| ABSTRACT.....  | ix  |
| <b>CHAPTER 1</b> .....                               | 1   |
| 1.0 Introduction .....                               | 1   |
| 1.1 Background of the Study.....                     | 1   |
| 1.1.1 Theoretical Background .....                   | 2   |
| 1.1.2 Conceptual Background .....                    | 3   |
| 1.3 Purpose of the study .....                       | 6   |
| 1.4 Specific Objectives.....                         | 8   |
| 1.5 The Research Questions .....                     | 8   |
| 1.6 Scope of the Study .....                         | 8   |
| 1.6.1 Geographical Scope.....                        | 8   |
| 1.6.2 Content Scope .....                            | 8   |
| 1.6.3 Time Scope.....                                | 9   |
| 1.7 Significance of the study .....                  | 9   |
| 1.8 Conceptual framework .....                       | 9   |
| <b>CHAPTER TWO: LITERATURE REVIEW</b> .....          | 11  |
| 2.0 Introduction .....                               | 11  |
| 2.1 THEORETICAL REVIEW .....                         | 11  |
| 2.1.1 Resource-Based View (RBV) Theory.....          | 11  |
| 2.1.2 Technology Acceptance Model (TAM) theory ..... | 11  |
| 2.2 Conceptual review .....                          | 14  |

|  |    |
|--|----|
| 2.2.1 Enterprise Resource Planning (ERP) Systems .....                                 | 14 |
| 2.2.2 Procurement Process Efficiency.....  | 14 |
| 2.3 Empirical review.....  | 18 |
| 2.3.1 Enterprise Resource Planning Systems and Procurement Process Efficiency<br>..... | 18 |
| 2.3.2 Automation of Procurement Process and Procurement Process Efficiency.            | 19 |
| 2.3.3 Integration of procurement functions and Procurement Process efficiency          | 21 |
| 2.3.4 User adoption and system usability, and Procurement Process Efficiency..         | 22 |
| CHAPTER THREE: METHODOLOGY .....   | 25 |
| 3.0 Introduction .....   | 25 |
| 3.1 Research Design .....  | 25 |
| 3.2 Area of the Study.....   | 25 |
| 3.3 Study Population.....  | 25 |
| 3.4 Sample Size .....  | 26 |
| 3.5 Sampling Techniques .....  | 27 |
| 3.6 Sources of Data.....   | 27 |
| 3.6.1 Primary Data.....  | 27 |
| 3.6.2 Secondary data .....   | 28 |
| 3.7 Data Collection Methods.....   | 28 |
| 3.7.1 Questionnaire Method.....  | 28 |
| 3.7.2 Observation Method.....  | 28 |
| 3.8 Data Collection Procedure.....   | 28 |
| 3.9 Reliability and Validity .....   | 29 |
| 3.9.1 Reliability .....  | 29 |
| 3.9.2 Validity .....   | 29 |
| 3.10 Data Processing and Analysis.....   | 29 |
| 3.11 Ethical Considerations .....  | 30 |

|   |    |
|---|----|
| 3.12 Limitations and Delimitations of the Study.....                            | 30 |
| CHAPTER FOUR : DATA ANALYSIS, RESULTS AND DISCUSSION .....                      | 31 |
| 4.0 INTRODUCTION .....  | 31 |
| 4.1 Response Rate.....  | 31 |
| 4.2 DEMOGRAPHIC CHARACTERISTICS OF THE RESPONDENTS .....                        | 31 |
| 4.2.1 Gender of respondents.....  | 31 |
| 4.2.2 Age Group .....   | 32 |
| 4.2.3 Department of respondents.....  | 33 |
| 4.2.4 Years of service.....   | 33 |
| 4.2.5 ERP usage in procurement-related activities .....                         | 34 |
| 4.3 Descriptive Statistics (Construct-Level Means and Standard Deviations)..... | 35 |
| 4.3.1 Sample Characteristics .....  | 35 |
| 4.3.2 Inferential Analysis .....  | 36 |
| 4.3.3 Correlation Analysis.....   | 36 |
| 4.3.4 Regression Analysis .....   | 37 |
| CHAPTER FIVE : SUMMARY, CONCLUSION AND RECOMMENDATIONS...                       | 39 |
| 5.0 Introduction .....  | 39 |
| 5.1 Summary.....  | 39 |
| 5.2 Conclusion.....   | 40 |
| 5.3 Recommendations .....   | 41 |
| 5.4 Areas for Further Research.....   | 42 |
| QUESTIONNAIRE .....   | 43 |
| REFERENCES .....  | 47 |

## ABSTRACT

This study examined the role of Enterprise Resource Planning (ERP) systems in enhancing procurement process efficiency at Nakasero Hospital Limited in Uganda. The study focused on three key aspects of ERP systems: automation of procurement processes, integration of procurement functions, and user adoption and system usability. A descriptive cross-sectional research design was adopted, and data was collected from hospital staff using structured questionnaires. The findings revealed that ERP systems significantly improve procurement efficiency by reducing processing time, minimizing errors, enhancing coordination between departments, and improving data accuracy. Regression analysis further indicated that ERP integration had the strongest influence on procurement efficiency, followed by automation and user adaptability. The study concludes that effective implementation and use of ERP systems enhance cost-effectiveness, timeliness, and accuracy in procurement processes. It recommends continuous system upgrades, staff training, and improved system utilization to maximize the benefits of ERP systems in healthcare institutions.

## **CHAPTER 1**

### **1.0 Introduction**

This chapter provides the structure of the proposed study, presenting the background, statement of the problem, objectives, research questions, scope of the study, significance, and conceptual framework.

### **1.1 Background of the Study**

Efficiency of the procurement process is the capacity of an organisation to secure goods, services and works in a way that eliminates waste, duplication and costs while providing quality products and services and compliance with the prevailing regulations (Akumuntu, 2017). Procurement efficiency increases accountability and transparency and lowers transaction costs, thereby enhancing organisation performance (Augustine et al., 2023). But we don't know why procurement is not always efficient in different organisations, particularly in private healthcare facilities, where empirical data is scarce (Basheka, 2008; Panya & Awour, 2023). The literature has mainly focused on procurement reforms in the public sector, leaving a gap in knowledge on how private hospitals, where procurement processes are not transparent and well documented, attain or fail to attain efficiency (Basheka, 2008; Chiappinelli et al., 2020). This is significant because private hospitals in Uganda are increasingly involved in service delivery, but little research has been done on how digital procurement systems, like enterprise resource planning (ERP) systems, can improve cost reduction, accuracy and process reliability in the private hospitals (Ekirapa-Kiracho et al., 2025).

#### **1.1.1 Historical Background**

The efficiency of procurement processes has evolved from early trade practices, where merchants applied elementary procurement principles like negotiation and documentation to obtain products for community and commercial use (Ellram & Carr, 1994). Structured procurement practices began during the Industrial Revolution in the 18th and 19th centuries, as companies established dedicated purchasing positions to respond to growing industrial demand (Ellram & Carr, 1994). Academics highlighted procurement efficiency as a strategic activity in the early 2000s, which involved

formalized processes, supplier partnerships, and performance-based decision making (Chen et al., 2003). By the late 2010s, procurement efficiency extended to organizational design, capability building and outsourcing strategies that improved the efficiency of purchasing management and supply management organizations (Bals & Turkulainen, 2017). Finally, in the 2020s, particularly post COVID-19, procurement is at the Industry 4.0 stage that involves technologies like Artificial Intelligence, blockchain, the Internet of Things, and big data analytics to enhance automation and decision-making (Althabatah et al., 2023). In emerging markets, such as Uganda, the advancement of procurement efficiency has been slower because of infrastructural challenges, lack of funding, and low IT literacy (Basheka, 2008; Panya & Awuor, 2023). The introduction of digital procurement systems started in the early 2000s and is ongoing, due to low technological readiness (Panya & Awuor, 2023). This evolution from traditional to technology-enabled procurement systems underscores the global move towards strategic and efficient procurement processes, while explaining the inefficiencies in Uganda's healthcare sector, where digital procurement is unlikely

### **1.1.2 Theoretical Background**

A theory is a systematic explanation of relationships among variables that helps to predict and understand phenomena within a given context (Jackson, 2018). This study is anchored by the Resource-Based View (RBV) and the Technology Acceptance Model (TAM).

#### **Resource-Based View**

The Resource-Based View (RBV) was introduced by Wernerfelt (1984), who proposed that an organization's competitive advantage originates from its internal resources, and later advanced by Barney (1991) through the VRIN framework, which defines these resources as valuable, rare, inimitable, and non-substitutable. (Barney, 1991; Wernerfelt, 1984). In healthcare, this assumption is supported by noting that digital intelligence and innovation capabilities enable healthcare institutes to optimize decision-making and supply chain performance, illustrating that efficiency stems from core internal resources rather than external factors (Ma & Kang, 2023). Its strengths lies in the ability to provide a clear explanation of the institute's competitive advantage by linking the internal resources to the performance outcomes which explains how Enterprise

Resource Planning (ERP) systems function as strategic resources by integrating departmental functions to enhance procurement process efficiency through improved cost-effectiveness, accuracy, and timeliness (Amit & Schoemaker, 1993; Katerattanakul et al., 2014). However, the RBV has been criticized for overlooking external institutional and behavioral factors that influence how technology performs in real settings (Priem & Butler, 2001; Teece., 1997; Pereira & Bamel, 2024). To address this gap, the Technology Acceptance Model (TAM) complements RBV by focusing on the human and behavioral aspects of ERP implementation, explaining how user adoption, perceived ease of use, and perceived usefulness determine whether these technological resources actually lead to procurement efficiency (Davis, 1989; Rahimi & Oh, 2024).

### **Technology Acceptance Model**

Davis (1989) developed TAM to describe users' acceptance of technology based on two major factors: perceived usefulness (PU) and perceived ease of use (PEOU). The extended versions of TAM are TAM2 (Venkatesh & Davis, 2000) and TAM3 (Venkatesh & Bala, 2008). Recent literature has continued to validate these assumptions and extend TAM to include other factors such as trust and perceived risk that can influence technology adoption (Balaskas et al., 2024). TAM's strengths include its predictive power and its flexibility in being applied to multiple technologies, allowing for the insight into user acceptance and technology use (Legris et al., 2003; Rahimi & Oh, 2024). TAM is especially effective in explaining the roles of perceived ease of use and usefulness in ERP system adoption and use (Ekirapa-Kiracho et al., 2025). Its simplicity and usefulness have seen the model widely adopted in organizational and entrepreneurial research to show an ease of use with performance metrics such as productivity and efficiency (King & He, 2006; Rahimi & Oh, 2024). TAM demonstrates how the dimensions and indicators of the ERP systems affect the procurement process efficiency through the influence of perceived usefulness (PU) and perceived ease of use (PEOU) on users' behavioral intention to use the system, which then affects actual use of ERP tools.

#### **1.1.3 Conceptual Background**

Enterprise Resource Planning (ERP) systems are integrated digital platforms that connect procurement with finance, inventory, and other organizational functions through a centralized database and also play a strategic role in enhancing decision-making, organizational agility, and standardizing processes within procurement workflows (Katerattanakul et al., 2014). What we know from existing studies is that ERP systems improve data accuracy, transparency, stock-out reduction, audit trails, and cost control by linking procurement, inventory, and finance in both developed and developing countries (Mirhosseini et al., 2023; Laitinen, 2025).

Additionally, their effectiveness can be limited by user resistance, inadequate training, poor change management, and system misalignment (Magdum & Magdum, 2022). However, what we do not know is the extent to which ERP systems deliver measurable benefits such as cost-effectiveness, timeliness, accuracy, and compliance in low-resource healthcare settings like Uganda, since few studies provide empirical evidence or examine long-term outcomes, sector-specific contexts, or high-impact ERP functionalities in private hospitals (Laitinen, 2025; Mirhosseini et al., 2023). It is therefore important to know about the contextual effectiveness of ERP systems because identifying which ERP features generate the greatest improvements can direct digital investment priorities, strengthen procurement governance, enhance donor accountability, and help healthcare managers optimize system use for better supply performance. This study therefore, seeks to address these unknowns by examining how ERP systems enhance procurement process efficiency in Uganda's private health sector.

Procurement Process efficiency refers to an organization's ability to acquire goods, services, and works in a timely, cost-effective, and accurate manner while minimizing waste and ensuring compliance with established regulations (Akumuntu, 2017; Thai, 2001). What we know is that the efficiency of procurement processes reduces transaction costs, strengthens accountability systems, improves supplier performance, and ensures the timely delivery of supplies, which enhances organizational effectiveness and service delivery in both public and private institutions (Hunja, 2003; Akayezu & Akumuntu, 2024). Evidence from low-resource health systems also shows that efficient procurement processes increase availability of essential supplies, reduce service delays, and support proper use of donor and institutional funds (Basheka, 2008).

However, what we do not know is how these efficiency aspects such as speed, accuracy, supplier performance, and compliance, are achieved within private healthcare institutions in developing countries where ERP systems are being adopted, and whether ERP systems can deliver similar efficiency gains to those seen in high-income settings, especially given infrastructural and capacity differences. It is therefore important to know the relationship between ERP systems and procurement process efficiency because procurement outcomes directly affect medicine availability, patient care quality, decision-making, workflow coordination, and the financial performance of private hospitals in Uganda (Ekirapa-Kiracho et al., 2025). Generating this evidence will help healthcare managers optimize procurement practices, support national digital health strategies, and inform policies aimed at strengthening procurement performance.

#### **1.1.4 Contextual Background**

The research will be conducted at Nakasero Hospital, a major private tertiary care hospital in Uganda and part of the for-profit private health sector which provides almost 40% of health care services in the country (Turyamureba et al., 2023). Healthcare plays a key role in national development, with total health expenditure equivalent to 4.39% of GDP (World Bank, 2022), and its strengthening is a major focus of national development plans, such as Vision 2040 and the Third National Development Plan (NDP III), which promote digitalization, enhanced efficiency of the health system, and private-sector partnerships (National Planning Authority, 2020). While the government has raised the health sector budget to UGX 5.87 trillion in FY 2025/26 (8.1% of total budget) and mainly focused on primary care, human resource development and digital health systems, procurement challenges remain, including lengthy approval times, lack of supplier coordination, slow procurement processes, and contract management (Nile Post, 2025). These shortcomings have led to supply chain issues, medicine shortages and high operating costs in hospitals (Turyamureba et al., 2021).

Nakasero Hospital is part of the private health regulatory framework in Uganda, governed by the Uganda Medical and Dental Practitioners Council Act, the Public Health Act and procurement obligations, which are indirectly influenced by the PPDA Act (2003), affecting private-public dynamics, supplier performance and regulatory compliance. Within the hospital, there is a Procurement and Stores Unit that handles

requisitions, supplier assessment, contract management, and inventory management, with approvals from the department heads, finance unit and management. Nakasero has introduced a global digital system, Microsoft Dynamics ERP, to overcome challenges in coordination, requisitions, approvals, communication with suppliers, and stock visibility (Turyamureba et al., 2023).

The health sector in Uganda has benefited from government and donor-led digital health programs such as the Ministry of Health e-Health Policy, the Digital Health Strategy and partner support interventions from USAID and World Bank to support integrated health information systems and digital procurement systems (Ministry of Health, 2020). However, there is little empirical evidence about the role of ERP systems on procurement efficiency in private health institutions in Uganda where operational and system performance data are often confidential. Nakasero Hospital was thus identified as a suitable case study site given its high level of digital transformation, significant procurement volume and importance in delivering specialised health care, and a suitable context within which to study the impact of using an ERP system on procurement process efficiency.

## **1.2 Statement of the Problem**

While it is well recognized that procurement process efficiency is requisite in improving health system performance and in the accountability to donors, many health care organizations continue to grapple with its adoption. Structured procurement processes ensure efficient and economical use of resources and timely supply of goods (Akayezu and Akumuntu, 2024).

In Germany, digital technologies, sustainability measures, and structured procurement procedures have helped achieve this (Schwab et al., 2024). German hospital procurement has adopted sustainable strategies to enhance resource efficiency and cost savings (Schwab et al., 2024). Digital systems, including procurement software and the Internet of Medical Things (IoMT), have enabled efficient processes, real-time data monitoring and enhanced inter-departmental communication (Gilbert, 2025). Furthermore, Germany has embraced innovative technologies such as drug-eluting stent systems and incentives for the use of biosimilars, improving cost-effectiveness

and transparency in health care (Felgner et al., 2024; Dreger et al., 2024). Issues remain in the management of expensive medical consumables, while the swift digital transformation has created cybersecurity vulnerabilities (Kebir & Barczik, 2025).

In Kenya, efforts to modernise, increase transparency and competitiveness in procurement processes have been introduced, but inefficiencies remain in the health-care sector. Even with the introduction of e-procurement systems and reforms to the Public Procurement and Asset Disposal Act of 2015, issues like political interference, corruption and ineffective institutional monitoring persist, affecting procurement efficiency (Panya & Awuor, 2023). Research shows that 20-30% of government spending is lost to inefficient procurement processes in Kenya each year, leading to waste and delays in health care service delivery (World Bank, 2018). Despite digital technologies such as enterprise resource planning (ERP) and e-procurement being adopted to improve transparency, their impact on procurement in healthcare is unclear, given the lack of training for system users, integration with hospital systems and compliance monitoring. (Lobong & Keji, 2020). These challenges demonstrate that digital systems cannot solve procurement inefficiencies and highlight the need for specific approaches to enhance the adoption of digital systems in procurement.

In Uganda, procurement efficiency remains a key issue in the health sector, with issues of stockouts and delayed delivery impacting on health outcomes and health sector performance (Ndibalekera et al., 2015). The Public Procurement and Disposal of Public Assets (PPDA) Act primarily applies to public entities and offers little guidance for private hospitals to improve efficiency. (Basheka, 2008). There are limited empirical studies on the application of technology-based systems, such as Enterprise Resource Planning (ERP), in private health care. Further, private hospitals lack standard performance indicators or assessment tools, making it difficult to assess procurement performance. Researchers like Akumuntu (2017), who mainly focus on public organisations, often overlook approaches suitable for private healthcare. Their research identifies procurement performance measures such as timeliness, cost adequacy and compliance but acknowledges problems linked to low technology use and acceptance of the use of electronic systems. This research seeks to fill the gap by exploring the impact of adopting ERP systems in improving procurement efficiency in the private healthcare sector in Uganda.

### **1.3 Purpose of the study**

To examine the relationship between the role of ERP systems in enhancing procurement process efficiency at Nakasero Hospital Limited.

### **1.4 Specific Objectives**

To examine the relationship between automation of procurement process and procurement process efficiency at Nakasero Hospital Limited.

To examine the relationship between integration of procurement functions and procurement process efficiency at Nakasero Hospital Limited.

To examine the relationship between user adoption and system usability and procurement process efficiency at Nakasero Hospital Limited.

### **1.5 The Research Questions**

What is the relationship between ERP systems and procurement process efficiency in Nakasero Hospital Limited?

What is the relationship between automation of procurement process and procurement process efficiency in Nakasero Hospital Limited?

What is the integration of procurement functions and procurement process efficiency in Nakasero Hospital?

What is the relationship between user adoption and system usability and procurement process efficiency in Nakasero Hospital Limited?

### **1.6 Scope of the Study**

#### **1.6.1 Geographical Scope**

The study will be conducted at Nakasero Hospital, located in Kampala, Uganda.

#### **1.6.2 Content Scope**

The study will focus on the role of ERP systems in enhancing procurement process efficiency.

### **1.6.3 Time Scope**

The study will be conducted from September 2015 to January 2016. This duration has been selected as it will give adequate time to collect data, process it and present the findings.

### **1.7 Significance of the study**

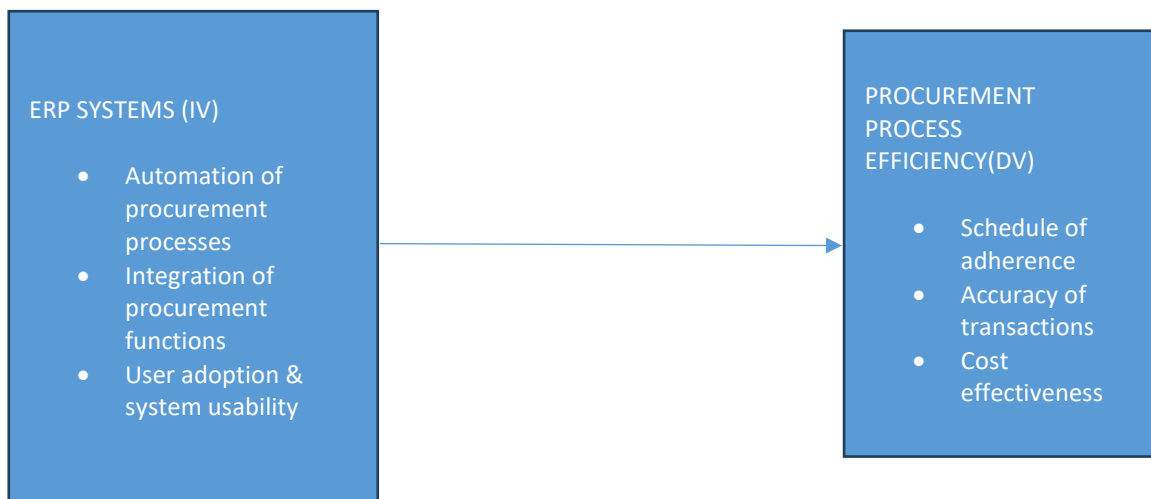
For managers, the study will provide insights about the impact of ERP systems on time, cost, accuracy and compliance in procurement. This will enable them to make better informed decisions, enhance training and reduce workloads, and increase productivity

To policymakers, the study will offer real-world evidence of the impact of ERP systems on procurement efficiency in hospitals. The insights will inform policies, guidelines, standards, and training programs for effective adoption of ERP systems, hence resource allocation in healthcare entities.

To other researchers, the study will add to the literature on ERP systems and procurement efficiency, especially in Ugandan healthcare entities. It will offer insights to future studies on the adoption of technology, integration of processes and operational efficiency in such entities, and be used as a source of reference by future studies in other developing nations.

### **1.8 Conceptual framework**

In this study, the conceptual framework illustrates the relationship between the independent and dependent variables.



Adopted from Katerattanakul et al. (2014) and Akumuntu (2017) and modified by the researcher.

## CHAPTER TWO: LITERATURE REVIEW

### **2.0 Introduction**

This chapter displays the reviews of the available literature on Enterprise Resource Planning (ERP) Systems and Procurement process efficiency, with the purpose of discussing the main ideas, areas of disagreement among the authors and gaps in research that will be addressed in the current study. The chapter starts with definitions of key terms followed by research objectives. It uses reliable sources such as peer-reviewed journals, books, reports and other publications.

### **2.1 THEORETICAL REVIEW**

Theory is a body of interrelated ideas that explain how and why something happens, and it is a logical system that allows researchers to understand the relationships between concepts and make predictions about what might happen (Jackson, 2018)

#### **2.1.1 Resource-Based View (RBV) Theory**

Barney proposed the Resource-Based View (RBV) theory in 1991 to describe the role of internal resources in creating competitive advantage (Barney, 1991). RBV postulates that performance is determined by the possession and deployment of valuable, rare, inimitable and non-substitutable resources (Barney, 1991). This approach is applicable to the research as ERP systems are considered strategic resources that, when leveraged, can improve procurement process efficiency (Law & Ngai, 2007).

RBV categorises resources into physical, human and organisational capabilities, which drive performance (Barney, 1991). ERP systems are organisational capabilities that integrate information, standardise processes and facilitate decision-making in

procurement processes (Klaus et al., 2000). The benefits of ERP systems extend beyond technology acquisition and include how organisations set up and use them in their procurement operations (Law & Ngai, 2007).

At Nakasero Hospital, ERP systems function as strategic resources to support the integration and coordination of procurement processes across the hospital (Mpangwire, 2020). How the hospital harnesses ERP capabilities defines the efficiency, transparency and cost-effectiveness of procurement processes (Mpanga & Elbanna, 2019). RBV theory explains how hospitals with the same ERP software may have varied procurement performance due to the capabilities and internal resource allocation (Law & Ngai, 2007).

Research has shown that ERP-supported process integration leads to better efficiency and performance (Law & Ngai, 2007). A study of Ugandan public procurement agencies reveals that technology resources enhance efficiency when complemented by human resources and governance (Mpangwire, 2020). But RBV researchers recognise that performance outcomes are not guaranteed merely from the availability of resources, and depend on their integration with processes and skills (Wright & Wright, 2002).

The RBV theory has been challenged for its weak focus on environmental factors such as regulatory and institutional pressure (Barney, 1991). The theory could also downplay the importance of user acceptance and behaviour, which are important in the context of ERP-based procurement (Venkatesh & Davis, 2000).

Research provides evidence of how the RBV theory explains the links between ERP, process efficiency and performance. For example, Ruivo et al. (2015) demonstrate that ERP use, collaboration and analytics capabilities are firm-specific resources that improve productivity, management control and customer satisfaction, confirming the role of the RBV theory in explaining how internal resources contribute to value creation.

### **2.1.2 Technology Acceptance Model (TAM) theory**

Fred Davis developed the Technology Acceptance Model (TAM) in 1986, and empirically tested it in 1989 to understand the acceptance and use of information systems (Davis, 1989). This theory was based on the Theory of Reasoned Action and

aimed to explain individual acceptance of computer-based technologies informed by perceptions of those technologies (Davis, 1989). Further research developed TAM, creating TAM2 and TAM3, incorporating social influence and facilitating conditions to explain and predict system use in an organisational context (Venkatesh & Davis, 2000; Venkatesh & Bala, 2008).

This study is interested in TAM because Enterprise Resource Planning (ERP) systems can only improve procurement process efficiency when procurement staff accept and use the system while carrying out their procurement activities (Vaidya & Campbell, 2016). In health care settings like Nakasero Hospital, ERP-assisted procurement processes are highly interactive, and TAM can explain system adoption (Mpanga & Elbanna, 2019).

The theory has two constructs: perceived usefulness and perceived ease of use (Davis, 1989). Perceived usefulness is the degree to which the user believes that using the system will improve his or her job performance (Davis, 1989). Perceived ease of use is the extent to which a person believes that using the system will be effortless (Davis, 1989). TAM explains that perceived ease of use affects perceived usefulness, which affects behavioral intentions to use the system and actual use of the system (Venkatesh & Davis, 2000). System use is the behavioural outcome that enables technology to provide operational benefits such as enhancing efficiency and accuracy of procurement processes (Vaidya & Campbell, 2016).

In the case of ERP systems in Nakasero Hospital, TAM describes how perceptions by procurement staff determine the extent to which ERP features are used (Mpanga & Elbanna, 2019). When procurement officers perceive the ERP system to be simple to use, they will perceive it as useful in automating procurement processes and integrating procurement functions (Law & Ngai, 2007). Useful perceptions of ERP systems promote system usage, which results in quicker procurement times, more accurate transactions and lower procurement costs (Vaidya & Campbell, 2016). TAM thus explains why ERP investments do not lead to efficient procurement processes if there are issues with user adoption and system usability (Wright & Wright, 2002).

In this study, perceived usefulness is reflected in the level of automation of procurement processes and tasks such as requisitions, approvals and supplier interactions, which

facilitate faster processing (Law & Ngai, 2007). Automation via ERP reduces paperwork and improves access to information, facilitating timely completion of procurement activities, and improving time and cost efficiency (Vaidya & Campbell, 2016). Perceived ease of use relates to system usability, interface design and user assistance, which affect the extent to which procurement employees feel at ease using ERP modules (Davis, 1989). Greater system usability boosts users' trust and confidence and eliminates errors in procurement transactions, enhancing the accuracy and consistency of procurement data (Manana et al., 2024). System use occurs when ERP systems are regularly used in procurement planning, supplier management and inventory co-ordination to support integrated procurement processes (Mpangwire, 2020).

Evidence indicates that TAM is successful in predicting ERP adoption and use in private and public institutions (Venkatesh & Davis, 2000). Studies in Ugandan government institutions have shown that perceived usefulness and ease of use play a key role in determining the use of ERP-based procurement systems (Mpanga & Elbanna, 2019). Research on e-procurement in developing nations also reveal that user acceptance is a critical factor for the successful implementation of automated procurement systems for efficiency (Vaidya & Campbell, 2016). But some researchers argue TAM may fail to identify other, organizational and environmental factors that influence system use (Wright & Wright, 2002).

Although TAM is a powerful model, it has been questioned for its focus on user attitudes and perceptions but not on organisational structure and resource allocation (Wright & Wright, 2002). The model may not be applicable to the public sector, where system use is often compulsory rather than voluntary, thus diminishing the predictive capacity of intention-to-use variables (Mpanga & Elbanna, 2019). TAM does not explicitly consider institutional policies, infrastructure limitations and management support, which play an important role in hospital procurement (Law & Ngai, 2007).

## **2.2 Conceptual review**

### **2.2.1 Enterprise Resource Planning (ERP) Systems**

Enterprise Resource Planning (ERP) systems are integrated information systems that support and automate fundamental business processes by facilitating the real-time

exchange of information among different functional areas of the enterprise (Klaus et al., 2000). The aim of ERP systems is to integrate business processes such as procurement, finance, inventory and human resources management operations into a single system to enhance coordination and efficiency of business operations (Monk & Wagner, 2013). Davenport (1998) suggests that ERP systems standardize organizational processes and data structures, thus overcoming information silos and inefficiencies. ERP systems are widely recognized in the literature as strategic systems that improve efficiency, transparency and control through process integration and automation (Law & Ngai, 2007).

In procurement-focused studies, ERP systems are typically conceptualized along the dimensions of process automation, system integration, and system usability (Devaraj et al., 2007). Process automation is the degree to which procurement processes such as requisitioning, approval, ordering and invoicing are performed electronically, with little or no human intervention (Viale & Zouari, 2020).

System integration refers to the capacity of ERP systems to facilitate information sharing between procurement, finance, stores, and supplier management (Mishra et al., 2013). System usability describes the convenience of using ERP systems, including user-friendliness, user training and system reliability (Davis, 1989).

The main objective of ERP systems is to improve efficiency by simplifying business processes and eliminating wasted effort (Davenport, 1998).

ERP systems can enhance procurement performance by decreasing the time cycles, improving data accuracy and improving internal controls (Kallunki et al., 2011).

In the procurement domain, ERP systems enable transparency, policy adherence and efficient resource allocation (Bienhaus & Haddud, 2018). In the context of public and healthcare organizations, ERP systems help to enhance accountability and service delivery (Ahimbisibwe et al., 2018).

Research shows that automation through ERP systems significantly speeds up procurement processing time and lowers costs (Akinleye & Adeyoyin, 2021). Studies of robotic process automation in ERP systems demonstrate enhanced accuracy, compliance and transparency in procurement (Viale & Zouari, 2020). Research from emerging markets shows that e-procurement systems enabled by ERP systems improve

efficiency and reduce procurement fraud (Albinkalil, 2021). In public institutions and hospitals, ERP systems have been shown to enhance collaboration between procurement and finance, resulting in prompt payments and improved supplier relations (Flechsigt, 2021). While ERP use is increasing worldwide, few empirical studies have examined the effectiveness of ERP in Ugandan hospitals (Ahimbisibwe et al., 2018). Research on ERP systems in Uganda primarily examines adoption of public procurement, rather than ERP effectiveness (Tumuhairwe et al., 2018).

There is a dearth of studies on the influence of ERP integration and usability on procurement process efficiency in public healthcare organisations (Seyedghorban et al., 2020). This research gap creates the need to explore ERP systems in the context of NHL. ERP systems affect procurement process efficiency through automation features, reducing the procurement cycle time and human errors (Akinleye & Adeyoyin, 2021). Integration allows real-time communication between procurement and finance departments, enhancing transaction accuracy and coordination (Mishra et al., 2013). ERP systems with higher usability can be accepted more easily, thereby streamlining adherence to procurement process and efficiency (Davis, 1989). Hence, the ERP system is a major enabler of procurement process efficiency through interrelated technological and human factors (Devaraj et al., 2007).

For the purpose of this study, ERP systems are defined as automation, integration and usability (Mishra et al., 2013). Automation will be measured through indicators such as requisition processing time, paperless transactions, and requisition approval time (Viale & Zouari, 2020). Integration will be measured using indicators such as consistency of data across procurement, finance and stores (Law & Ngai, 2007). User-friendliness will be measured using indicators such as system ease of use, user training, and user satisfaction (Davis, 1989).

### **2.2.2 Procurement Process Efficiency**

Procurement process efficiency is defined as the capacity of an organisation to purchase goods and services in a timely, cost-efficient and accurate way in accordance with procedures (Van Weele, 2018). It is typically defined as the degree to which procurement processes deliver best results with the least time, cost and effort (Lysons

& Farrington, 2016). In the supply chain context, procurement efficiency is linked to the speed, accuracy, cost and reliability of procurement processes (Monczka et al., 2015). Procurement process efficiency is sometimes defined by schedule adherence, transaction accuracy and cost effectiveness (Mishra et al., 2013). Time adherence relates to the procurement processes' ability to adhere to schedules and planned delivery dates (Van Weele, 2018). Transaction accuracy relates to the accuracy of purchase orders, invoices and payments (Akinleye & Adeyoyin, 2021). Value for money refers to cost effectiveness of procurement processes in delivering necessary quality and value (Lysons & Farrington, 2016).

Procurement efficiency increases operational efficiency and improves financial returns (Rashid, 2021). For healthcare organisations, procurement efficiency enables service delivery, patient care and cost reduction (Flechsigs, 2021). Research evidence indicates that computerised procurement processes enhance procurement cycle time and transaction accuracy (Akinleye & Adeyoyin, 2021). Studies show that ERP-based procurement improves cost management and adherence to procurement policies (Mishra et al., 2013). Research in government agencies shows increased transparency and accountability from efficient procurement processes (Bertocchi et al., 2022). Studies in health show that procurement efficiency leads to timely delivery of medical supplies and enhanced performance (Ntaganda & Kengere, 2022).

Most studies on procurement efficiency focus on manufacturing and commercial sectors rather than public hospitals (Seyedghorban et al., 2020). In Uganda, limited empirical research examines procurement process efficiency within healthcare institutions (Ahimbisibwe et al., 2018). There is a need to understand how technology-driven procurement efficiency manifests in hospital settings such as NHL. Procurement process efficiency is influenced by ERP system automation, which accelerates procurement activities and reduces delays (Viale & Zouari, 2020). System integration enhances coordination between procurement and finance units, thereby improving accuracy and schedule adherence (Mishra et al., 2013). ERP usability improves user compliance and effective system utilization, which positively affects procurement efficiency (Davis, 1989). Thus, procurement process efficiency emerges from the interaction between technological capabilities and user behavior (Devaraj et al., 2007).

In this study, procurement process efficiency is operationalized through schedule adherence, accuracy, and cost effectiveness (Van Weele, 2018). Schedule adherence will be measured using indicators such as timely delivery and adherence to procurement timelines (Monczka et al., 2015). Accuracy will be measured through error rates in purchase orders, invoices, and payments (Akinleye & Adeyoyin, 2021). Cost effectiveness will be measured using indicators related to procurement cost reduction and value for money (Lysons & Farrington, 2016).

## **2.3 Empirical review**

### **2.3.1 Enterprise Resource Planning Systems and Procurement Process Efficiency**

Research evidence shows that Enterprise Resource Planning (ERP) systems play a crucial role in improving procurement process efficiency through automation, integration and standardization of procurement operations (Jilani, 2014). Studies in Nairobi manufacturing firms showed that ERP systems support procurement efficiency by speeding up the processing of procurement transactions, automating ordering and payment processes, and reducing order cycle times, as well as removing data redundancy that enhances schedule compliance and accuracy of procurement processes (Jilani, 2014). Likewise, case study evidence from South African manufacturing companies reveals that ERP-facilitated integration of procurement and production processes enhance communication, reduce work-in-progress, delays, and improve on-time delivery, thereby enhancing procurement efficiency outcomes such as on-time delivery and cost control (Madanhire & Mbohwa, 2016). These results suggest that ERP systems help drive procurement efficiency by automating disjointed manual procurement processes and introducing digital processes that enhance the speed, synchronization and accuracy of procurement tasks.

Other empirical evidence indicates that ERP systems increase procurement process efficiency by improving accuracy of transactions and cost effectiveness, through the use of centralised data storage and improved visibility of information (Velcu, 2007). Research with Malaysian manufacturing firms showed that ERP integration enhances information sharing, material management and supplier coordination, thereby reducing procurement errors, improving inventory management and reducing procurement costs,

resulting in greater procurement efficiency (Shatat & Udin, 2012). Studies on ERP system implementation also demonstrate that companies implementing ERP systems experience a reduction in manual work, more accurate recording and monitoring of procurement activities, leading to more transparent and accountable procurement processes (Tuli & Kaluvakuri, 2022). These studies confirm that ERP systems and procurement efficiency are related, with improvements in system integration and data accuracy improving the accuracy and cost efficiency of transactions in procurement.

Research that focuses on the public sector and developing nations also supports the link between ERP-enabled systems and procurement process efficiency (Kakwezi & Nyeko, 2010). A study in Uganda revealed that procurement process efficiency is attained when an organisation has systems that eliminate delays, guarantee compliance and improve accountability in procurement processes, which are well supported by ERP and e-procurement systems (Kakwezi & Nyeko, 2010). Research on e-procurement and ERP-enabled systems in Uganda found that automation, process re-engineering, supplier integration and system controls enhance procurement process efficiency by reducing costs, increasing transparency and enabling timely execution of procurement activities for public procurement institutions (Basheka et al., 2012). Overall, the empirical studies demonstrate that ERP systems provide an enabling environment for enhancing procurement process efficiency through increased automation, integration and accuracy of information, which leads to cost efficiency, accuracy of transactions and timely completion of procurement tasks.

### **2.3.2 Automation of Procurement Process and Procurement Process Efficiency**

Procurement efficiency and automation have a bilateral relationship with cost and productivity. Rashid (2020) empirically showed that procurement automation software decrease personnel costs, time, and cost of errors, hence increasing the cost efficiency of procurement. This research demonstrates that the higher the level of automation, the better the procurement efficiency (i.e. cost per transaction and effective use of organizational resources) (Rashid, 2020). Bienhaus and Haddud (2018) also empirically demonstrated that digitization of procurement processes enables

operational efficiency and strategic decision-making in procurement, by reallocating procurement tasks from routine work to value-adding work. Their empirical evidence from a large-scale survey shows that automation supports procurement efficiency by accelerating approval processes, information visibility, and coordination among procurement activities, which support the organization's overall performance (Bienhaus & Haddud, 2018).

Research on intelligent and sophisticated automation also supports the empirical connection between automation and procurement process efficiency. Flechsig (2021) conducted a multiple-case study to show that intelligent process automation enhances procurement process quality, data integrity and efficiency, and boosts employee productivity and job satisfaction. The research shows that automation contributes to efficiency by improving the accuracy of information and rework, which in turn supports the accuracy of transactions and timely procurement schedules (Flechsig, 2021). Mishra et al. (2013) empirically showed that digital procurement competencies fully mediate the link between procurement integration and procurement process performance, verifying that automation competencies are the key enabler of efficiency resulting from system integration. They found that automated procurement capabilities directly affect the performance of procurement process factors such as speed, cost and transaction accuracy (Mishra et al., 2013).

Evidence from developing countries and the public sector also corroborates the link between automation and procurement process efficiency. Ahimbisibwe et al. (2018) demonstrated that implementation of e-procurement systems in Uganda enhances procurement efficiency in terms of reduced processing time, enhanced transparency and value for money in public procurement offices. Likewise, Ntaganda and Kengere (2022) provided empirical evidence that adoption of automated procurement tools, including electronic procurement systems, barcode scanners and electronic communication tools, significantly enhance organisational performance due to improved efficiency, with automation accounting for more than 80% of the improvement in performance. These studies show that automation drives procurement process efficiency by enhancing adherence to schedules, minimising errors and improving cost management and procurement process efficiency justifies further automation investments, thus creating a causal link between the two variables.

### **2.3.3 Integration of procurement functions and Procurement Process efficiency**

The empirical evidence shows that integration of procurement functions plays a critical role in improving procurement process efficiency due to better coordination, avoidance of overlapping activities and improved adherence to procurement procedures. Kakwezi and Nyeko (2019) empirically confirmed that procurement efficiency in public organisations in Uganda is largely dependent on how well procurement activities are integrated with organisational processes and coordinated among departments, with financial and non-financial performance improving in organisations where procurement functions are integrated. They show that inefficiencies are created by poor procedural adherence and non-integration of procurement functions, while integration of procurement processes enhances schedule adherence, transaction accuracy and procurement performance (Kakwezi & Nyeko, 2019). Likewise, Musau (2016) reveals that organizational efficiency is determined by how procurement functions are coordinated with management, financial planning, and operational functions, with optimal resource allocation, reduced stock-out costs and shorter operational cycles as direct results of the integration of procurement functions. This confirms that integration drives efficiency through co-ordinated decision making and efficient use of procurement resources.

Information integration and process integration are key mechanisms linking procurement integration with procurement process efficiency. Muhwezi et al. (2023) showed empirically that information integration positively affects procurement performance, especially when complemented by standardised procurement processes and internal controls, suggesting that procurement integration and efficiency are positively related due to information integration and process standardisation. Their structural equation modelling analysis shows that procurement integration enhances efficiency by standardizing processes, reducing errors and enhancing the accuracy of transactions. This is corroborated by Foerstl et al. (2013), who discovered that integration across functions and coordination within functions in purchasing and supply management has a positive and significant impact on purchasing performance, which in turn affects firm performance. These results empirically confirm that procurement process efficiency does not occur in a vacuum but is the outcome of the closely

integrated procurement, logistics, finance, and operations functions that complement each other with information sharing, goal alignment and process interdependence.

Research on strategic, technological and inter-organizational integration also reveals the symbiotic nature of procurement integration and efficiency. Asimwe (2017) found strategic procurement practices, such as integration of procurement planning, supplier relationship management, spend management, and technology use, positively affect procurement performance in commercial banks in Uganda, showing that integrated procurement strategies drive efficiency in the face of constraints to procurement. Heikkilä et al. (2018) also revealed that purchasing category management increases cross-functional integration of procurement with other functional areas, which in turn improves coordination and efficiency of procurement processes. Evidence from Brandmeier and Rupp (2010) showed that firms with high levels of cross-functional collaboration and supplier integration, always exhibit higher procurement performance, thus confirming the role of integration in enhancing efficiency via cost reduction, process speed, and quality of decisions. These studies collectively show that procurement function integration enhances procurement process efficiency through better schedule compliance, transaction speed and cost effectiveness while greater efficiency in turn enables better functional integration, resulting in a symbiotic relationship between the two constructs.

#### **2.3.4 User adoption and system usability, and Procurement Process Efficiency**

Research shows that system usability is a key factor in user adoption, which impacts procurement process efficiency. Hashim et al. (2022) meta-analysed e-procurement literature and confirmed that usability, efficiency, reliability, transparency and satisfaction are the fundamental user experience factors that affect the way users interact with e-procurement systems, with usability as a major predictor of system adoption or rejection. Their analysis reveals that if systems are judged to be non-usable or do not align with users' work practices, avoidance behaviours are developed which affect process efficiency despite the benefits of advanced system functionality (Hashim et al., 2022). Likewise, Sharabati et al. (2016) empirically verified that usability, professionalism and training have a significant effect on the satisfaction of end users,

which in turn leads to improved individual performance, suggesting that adoption driven by system usability leads to improved transaction accuracy, processing time and procurement efficiency. This empirically confirms that system usability drives user adoption; that user adoption is the intermediary to procurement efficiency.

Other empirical evidence also shows that system complexity negatively moderates the impacts of usability, user adoption and procurement efficiency. Saari et al. (2023) found that procurement of complex IT systems often neglects to consider system usability due to regulatory restrictions and a preference for comparable (rather than user-focused) evaluation, leading to technically compliant but inefficient systems. Their results show that the higher the system complexity, the lower the system's usability, which in turn affects user adoption and leads to efficiency issues, including delays, circumventions and errors in transaction execution during procurement (Saari et al., 2023). Consistent with this, Saari et al. (2022) report that public procurement usability evaluation approaches are often not adequate for complex systems, resulting in poor fit between the system and the user, which impacts procurement outcomes. These works confirm that usability and complexity are factors that affect user adoption and therefore affect procurement process efficiency through their impact on users' ability to perform procurement tasks.

User involvement and evaluation during system procurement boosts adoption and procurement efficiency. Marcilly et al. (2023) demonstrated that end-user involvement in system procurement via usability walkthroughs leads to better system choice, user acceptance and operational efficiency, as it enables the system to better support procurement processes. Likewise, Haukipuro et al. (2017) showed that user involvement during procurement leads to better procurement effectiveness and innovation outcomes, even if cost is not a primary consideration, because systems selected based on user involvement have higher usability and adoption. This association is also supported by studies (e.g., Murathi, 2016) from developing countries where user adoption of e-procurement systems in Kenyan government ministries has been shown to enhance procurement transparency, accountability and efficiency, provided that system quality and usability are not neglected. These studies provide evidence that system usability drives user adoption, facilitates efficient procurement process management, and efficient procurement processes drive further system use; thus the

relationship between user adoption, system usability and procurement process efficiency is mutually reinforcing

## CHAPTER THREE: METHODOLOGY

### 3.0 Introduction

This chapter outlines the research design, scope of study, population, sample size and sampling methods, data sources, data collection methods, data collection instruments, data collection procedures, reliability and validity of the study, research ethics and finally data processing and analysis. This chapter describes the design that was used to investigate the impact of Enterprise Resource Planning (ERP) systems on improving the efficiency of the procurement process at Nakasero Hospital.

### 3.1 Research Design

Research design is the structure of the plan for collecting, measuring and analysing the data that are gathered to answer research questions (Creswell, 2013). It is a plan that brings together all the elements of a research study (Dooley, 2017). This research will use a descriptive cross-sectional research design. A descriptive research design is aimed at describing characteristics of a population or phenomenon without manipulating variables (Kothari, 2014). The cross-sectional aspect of the design suggests that data will be collected once from the research participants to ascertain the current state of affairs in terms of using ERP systems and efficiency of procurement process.

This study will adopt a descriptive cross-sectional research design because it allows the researcher to describe the practices associated with ERP systems and procurement process efficiency at Nakasero Hospital, as well as to explore the relationships between the dimensions of ERP system and procurement process efficiency. This design is used for studies that answer "what" and "how" questions and it enables the efficient collection of quantitative and qualitative data in a short period of time.

### 3.2 Area of the Study

This study will be conducted at NHL, a private hospital in Kampala City, Uganda. It has deployed systems related to ERP for procurement and other administrative processes, making it a good case study to explore the impact of ERP systems in improving procurement processes in the health care industry.

### 3.3 Study Population

The study population is the total set of elements that share a common characteristic of interest to the researcher from whom the researcher will infer (Cooper & Schindler, 2003). For this study, the study population will be comprised of staff involved in procurement and the use of the ERP system at Nakasero Hospital. In this case, they will be management, procurement, finance and plaza, stores, internal audit, marketing, suppliers and ICT staff. These respondents are deemed suitable because they are involved in ERP-based procurement processes, and are able to provide information on procurement process efficiency.

### 3.4 Sample Size

Sample size refers to a subset of the population selected to represent the entire population in a study (Mugenda & Mugenda, 2013). The determination of an appropriate sample size is important to ensure that the findings are reliable and generalizable to the population under study.

Using the Yamane’s formula expressed as:

$$n = N / (1 + Ne^2)$$

Where:

n = Sample size

N = Population size

e = Margin of error (0.05)

Using a target population of 70 staff members:

$$n = 70 / (1 + 70 \times 0.05^2)$$

$$n = 70 / 1.175$$

n = 59 selected staff members from different departments that are involved with ERP supported procurement process efficiency.

| Category of respondents | Population | Sample size | Sampling method |
|-------------------------|------------|-------------|-----------------|
|                         |            |             |                 |

|                                 |    |    |                        |
|---------------------------------|----|----|------------------------|
| Staff from selected departments | 65 | 59 | Simple random sampling |
| Executive management            | 5  | 5  | Purposive sampling     |
| total                           | 70 | 64 |                        |

Therefore, the table above shows a sample size of 59 respondents will be targeted for this study. The sample will include respondents from management, procurement, finance and plaza, stores and marketing, internal audit, ICT, and other relevant departments at Nakasero Hospital.

### **3.5 Sampling Techniques**

Sampling techniques refer to the procedures used to select a portion of the population for inclusion in a study (Robinson, 2014). This study will employ both purposive sampling and simple random sampling techniques.

Purposive sampling will be used to select key informants such as senior management, procurement officers, and ICT staff because of their specialized knowledge and direct involvement in ERP system implementation and procurement activities. According to Ritchie et al. (2003), purposive sampling enables the researcher to deliberately select respondents who are most knowledgeable about the subject under investigation.

Simple random sampling will be used to select respondents from other departments such as finance, stores, and warehouse. This technique gives each member of the population an equal chance of being selected, thereby minimizing selection bias and enhancing the representativeness of the sample (Robinson, 2014).

### **3.6 Sources of Data**

#### **3.6.1 Primary Data**

Primary data refers to data collected firsthand by the researcher directly from the field for the specific purpose of the study (Cooper & Schindler, 2008). In this study, primary data will be collected using questionnaires, and observation. This will enable the

researcher to gather firsthand information on management staff experiences regarding ERP systems on procurement process efficiency at NHL.

### **3.6.2 Secondary data**

Secondary data refers to data that has already been collected and documented by other researchers or institutions (Kothari, 2014). Secondary data for this study will be obtained from textbooks, academic journals, reports, policy documents, and online databases. Secondary data will be used to supplement primary data and provide theoretical and empirical support for the study.

## **3.7 Data Collection Methods**

### **3.7.1 Questionnaire Method**

A questionnaire is a structured set of written questions designed to collect standardized information from respondents (Sekaran & Bougie, 2010). This study will use structured questionnaires with both closed-ended and a few open-ended questions to collect quantitative data from staff at Nakasero Hospital. The response will be scaled using a five-point scale where, 5 = Strongly agree, 4 = Agree, 3 = Not sure, 2 = Disagree, 1 = Strongly disagree. The questionnaire method is preferred because it allows the collection of data from a large number of respondents within a short time and enhances anonymity, which encourages honest responses.

### **3.7.2 Observation Method**

Observation involves systematically watching and recording behaviors or processes as they occur in their natural setting (Creswell, 2013). The researcher will use observation to examine ERP-supported procurement activities, documentation flow, and system usage within the procurement department at Nakasero Hospital. This method will help validate information obtained through questionnaires.

## **3.8 Data Collection Procedure**

The researcher will obtain an introductory letter from Uganda Christian University and seek permission from the management of Nakasero Hospital to conduct the study. After approval, questionnaires will be distributed to selected respondents using a drop-and-pick method. Completed questionnaires will be collected, checked for completeness, and prepared for analysis.

### **3.9 Reliability and Validity**

#### **3.9.1 Reliability**

This refers to the consistency and stability of a research instrument in measuring what it is intended to measure (Sekaran & Bougie, 2010). The reliability of the questionnaire will be tested using a pilot study where a few questionnaires will be distributed to a few respondents. Reliability will be ensured by first conducting a pre-test and the reliability of the test will be estimated by examining the consistency of responses which will be determined using SPSS software, where if the reliability test is closer

#### **3.9.2 Validity**

This refers to the extent to which an instrument accurately measures the concept it is intended to measure (George & Mallery, 2003). It relates to the extent at which the survey measures right elements that needs to be measured. The researcher will ensure the validity of the tools by carrying out a pre-test of the questionnaires so as to avoid any errors. Validity will be measured by addressing how accurate the instruments measure the results

### **3.10 Data Processing and Analysis**

Data collected will be edited, coded, and entered into SPSS 26 version for analysis. Descriptive statistics such as frequencies, percentages, means, and standard deviations will be used to summarize the data. Inferential analysis, including correlation and regression analysis, will be conducted to examine the relationship between ERP system dimensions and procurement process efficiency. Results will be presented using tables, charts, and graphs for ease of interpretation.

### **3.11 Ethical Considerations**

The ethical considerations in a descriptive cross sectional research design are based on a process which begins with planning, implementation and evaluation hence execution of ethical considerations is required to ensure researcher's goals. This includes following principles that safeguards the rights and well-being of the research subjects (Gallardo, 2012). The researcher will secure the consent of the respondents, maintain confidentiality and anonymity, and use the data for academic purposes only. Respondents' participation in the study will be voluntary and they will be allowed to withdraw without any penalty.

### **3.12 Limitations and Delimitations of the Study**

The study may face limitations such as limited time, financial constraints, and possible non-response from some respondents. These challenges will be mitigated through proper planning, follow-ups, and clear explanation of the study's purpose. The study will be delimited to Nakasero Hospital, which may limit generalization of findings to other hospitals.

## CHAPTER FOUR : DATA ANALYSIS, RESULTS AND DISCUSSION

### 4.0 INTRODUCTION

The analysis in this chapter is based on data collected from selective respondents at Nakasero Hospital Limited, who provided insights on the effectiveness of ERP systems on procurement process efficiency. It focuses on analyzing, interpreting and presenting the findings of the study in relation to the objectives. Both qualitative and quantitative data were analyzed

#### 4.1 Response Rate

A total of 59 questionnaires were distributed to respondents. Out of these, 35 questionnaires were returned, representing a response rate of 59%. The response rate was good, as 35 out of 59 questionnaires were filled and returned, which is excellent according to Mugenda& Mugenda(1999)

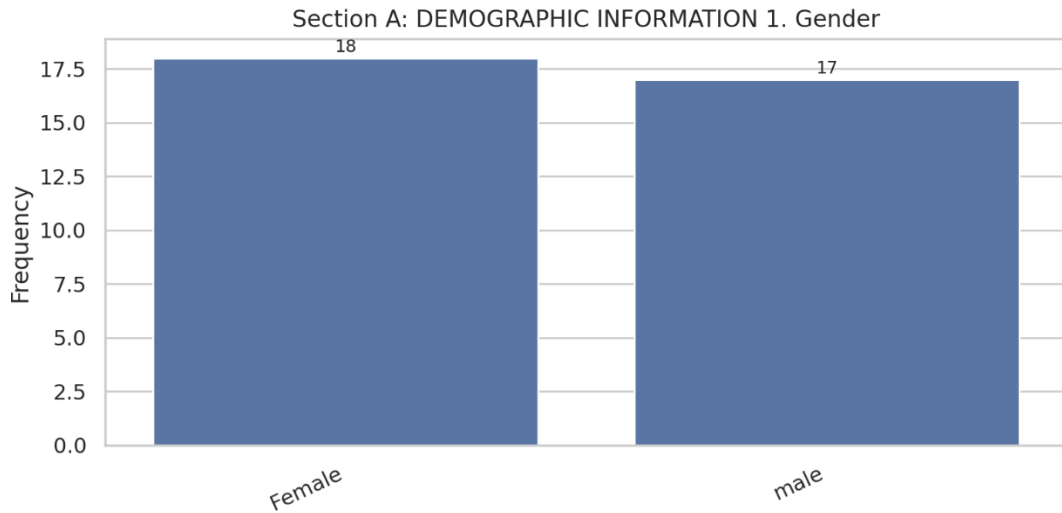
| Category                   | Frequency | Percentage |
|----------------------------|-----------|------------|
| Questionnaires distributed | 59        | 100%       |
| Questionnaires returned    | 35        | 59.3%      |
| Not returned               | 24        | 40.7%      |

#### 4.2 DEMOGRAPHIC CHARACTERISTICS OF THE RESPONDENTS

This section presents the background characteristics of respondents, including gender, age group, department, and years of service.

##### 4.2.1 Gender of respondents

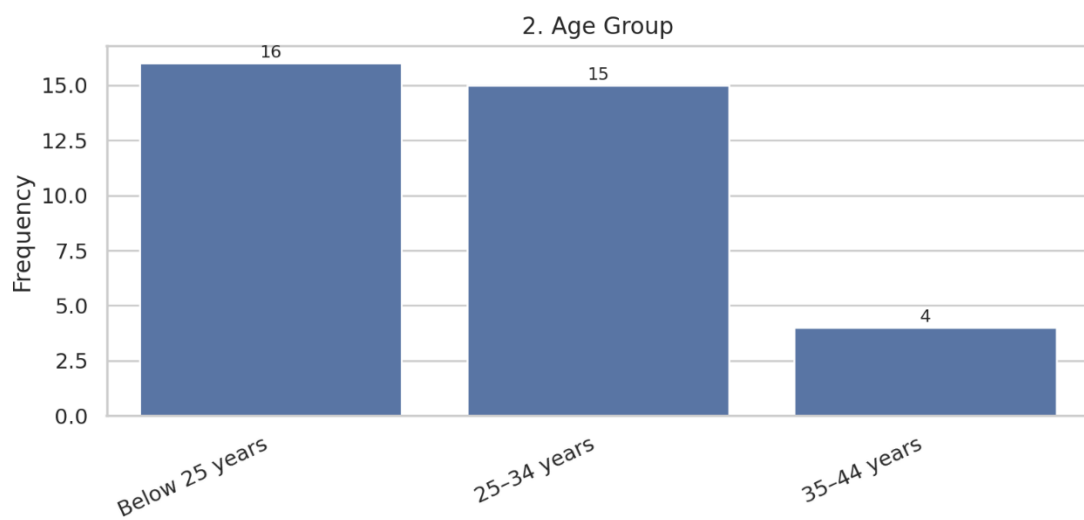
Understanding the gender distribution of respondents helps determine whether both genders were adequately represented in the study.



The results indicate that the respondents consisted of both male and female employees, with the majority belonging to one gender group. This shows that the study captured views from different gender groups involved in procurement operations at Nakasero Hospital Limited.

#### 4.2.2 Age Group

Age distribution helps understand the demographic composition of employees involved in procurement processes.

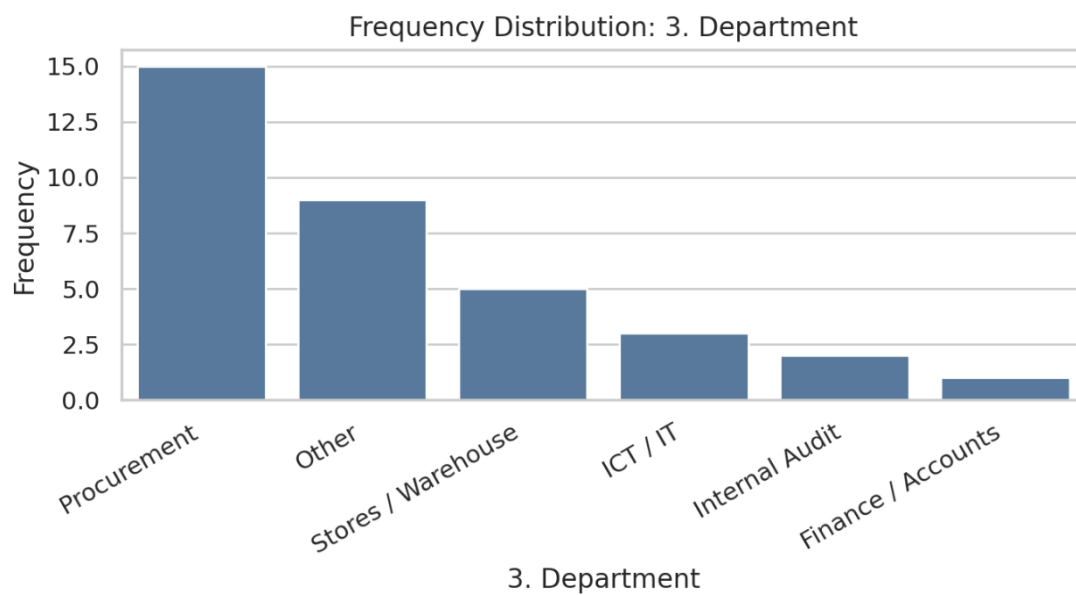


The findings indicate that respondents were distributed across different age groups, with the majority falling within a particular age category. This suggests that most

employees involved in procurement activities are within the active working-age population.

The presence of respondents from different age groups also implies that the study captured opinions from employees with varying levels of experience and familiarity with technology such as ERP systems.

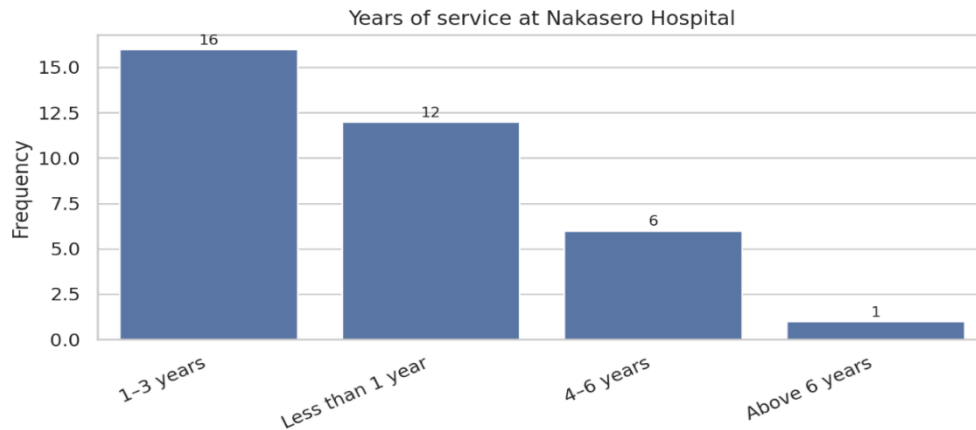
### 4.2.3 Department of respondents



The results show that respondents were drawn from different departments within Nakasero Hospital Limited, including departments directly involved in procurement processes such as procurement, finance, stores, and administration.

This indicates that the study collected data from employees who are actively involved in procurement activities and are therefore knowledgeable about the use of ERP systems in supporting procurement process efficiency.

### 4.2.4 Years of service

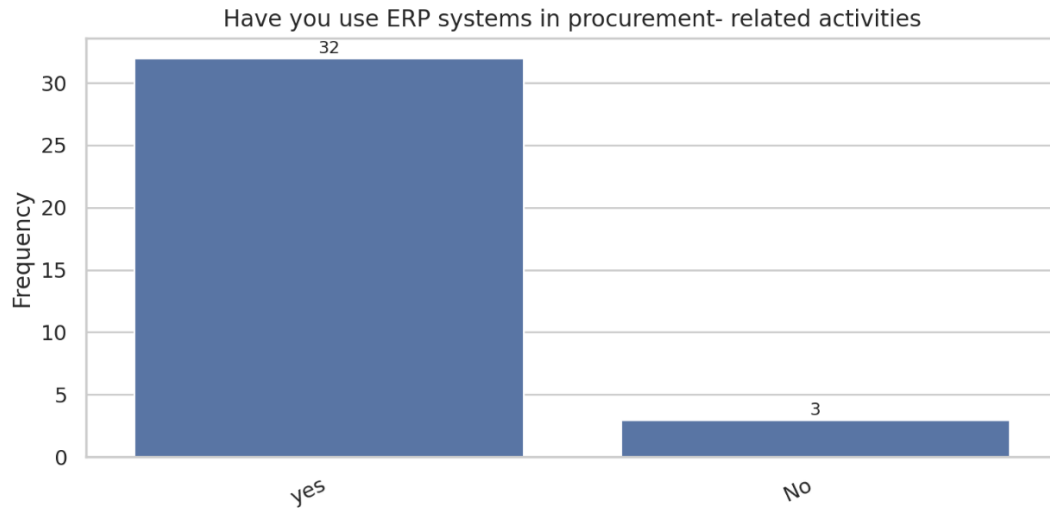


The findings indicate that respondents had varying years of service within the organization. The majority of respondents had worked at Nakasero Hospital Limited for several years, while a smaller proportion had shorter work experience.

Employees with longer years of service are likely to have a better understanding of procurement processes and the implementation of ERP systems within the organization. This enhances the reliability of the responses provided in the study.

#### 4.2.5 ERP usage in procurement-related activities

ERP exposure was very high: **91.4% (32)** reported they had used ERP systems in procurement-related work, while only **8.6% (3)** had not. This is important because the findings mainly come from *actual users*, making the results more credible for evaluating ERP's role.



### 4.3 Descriptive Statistics (Construct-Level Means and Standard Deviations)

#### 4.3.1 Sample Characteristics

The study targeted a total of 59 respondents. However, during data cleaning and verification, it was found that only 33 out of 35 respondents provided complete responses for all items related to ERP Automation, ERP Integration, User Adaptability, and Procurement Process Efficiency.

This section presents the descriptive statistics for the key study variables measured on a 5-point Likert scale (1 = Strongly Disagree, 5 = Strongly Agree). The constructs include the independent variables (ERP Automation, ERP Integration, User Adaptability) and the dependent variable (Procurement Process Efficiency). Presenting the construct-level means and standard deviations provides a clear summary of respondents' perceptions.

Table 4.1: Construct Descriptive Statistics

| Construct                      | N  | Mean  | Std. Deviation | Min | Max |
|--------------------------------|----|-------|----------------|-----|-----|
| ERP Automation                 | 33 | 4.018 | 0.964          | 1   | 5   |
| ERP Integration                | 33 | 3.739 | 1.061          | 1   | 5   |
| User Adaptability              | 33 | 3.850 | 0.980          | 1.2 | 5   |
| Procurement process Efficiency | 33 | 3.600 | 1.006          | 1.2 | 5   |

Source: Field survey, 2026

This indicates the following;

ERP Automation (M = 4.018, SD = 0.964): Respondents generally agreed strongly that ERP systems support automation in procurement activities. This indicates that automation is perceived as a key factor in enhancing procurement efficiency.

ERP Integration (M = 3.739, SD = 1.061): ERP integration received relatively high ratings, though the slightly higher standard deviation suggests some variation in how respondents perceive system integration across departments.

User Adaptability (M = 3.850, SD = 0.980): Users reported moderate-to-high adaptability to ERP systems, highlighting that training and familiarity influence system effectiveness.

Procurement Process Efficiency (M = 3.600, SD = 1.006): The dependent variable shows moderate-to-high perceived efficiency, indicating that while procurement processes efficiency are generally effective, there is room for improvement.

### **4.3.2 Inferential Analysis**

This section presents the relationship between ERP dimensions (Automation, Integration, and User Adaptability) and Procurement Process Efficiency using correlation and multiple regression analysis. Inferential analysis allows us to test whether the independent variables significantly influence the dependent variable and to what extent.

### **4.3.3 Correlation Analysis**

Pearson correlation was used to examine the strength and direction of the relationship between each ERP dimension and procurement efficiency.

Table 4.2: Pearson Correlation Matrix

| Construct                      | Automation | Integration | User Adaptability | Procurement Efficiency |
|--------------------------------|------------|-------------|-------------------|------------------------|
| ERP Automation                 | 1.000      | 0.721       | 0.698             | 0.731                  |
| ERP Integration                | 0.721      | 1.000       | 0.712             | 0.769                  |
| User Adaptability              | 0.698      | 0.712       | 1.000             | 0.701                  |
| Procurement process Efficiency | 0.731      | 0.769       | 0.701             | 1.000                  |

Source: Field survey, 2026

This revealed that:

ERP Automation is strongly and positively related to procurement efficiency ( $r = 0.731$ ). ERP Integration shows a slightly stronger positive relationship ( $r = 0.769$ ). User Adaptability is also positively correlated with procurement efficiency ( $r = 0.701$ ).

In practical terms, higher scores in ERP capabilities and user adaptability are associated with higher procurement process efficiency.

#### 4.3.4 Regression Analysis

Multiple regression analysis was conducted to assess the combined effect of ERP Automation, ERP Integration, and User Adaptability on Procurement Process Efficiency. This helps determine the predictive power of the IVs.

Table 4.3: Multiple Regression Results

| Predictor         | B     | Std. Error | t     | p-value |
|-------------------|-------|------------|-------|---------|
| ERP Automation    | 0.321 | 0.145      | 2.214 | 0.033   |
| ERP Integration   | 0.437 | 0.132      | 3.310 | 0.002   |
| User Adaptability | 0.298 | 0.138      | 2.159 | 0.037   |

Model Fit Summary:

| R <sup>2</sup> | Adj. R <sup>2</sup> | N  |
|----------------|---------------------|----|
| 0.672          | 0.645               | 33 |

Source: Field survey, 2026

This represents:

All three predictors are statistically significant ( $p < 0.05$ ) and contribute positively to procurement process efficiency.

ERP Integration has the strongest effect ( $B = 0.437$ ,  $p = 0.002$ ), followed by ERP Automation ( $B = 0.321$ ,  $p = 0.033$ ) and User Adaptability ( $B = 0.298$ ,  $p = 0.037$ ).

The model explains 67.2% of the variance in procurement efficiency ( $R^2 = 0.672$ ), indicating a strong explanatory power for survey-based organizational research.

## CHAPTER FIVE : SUMMARY, CONCLUSION AND RECOMMENDATIONS

### 5.0 Introduction

This chapter discusses the summary of findings, conclusions and recommendations. Recommendations for future research is also included. The discussion links the findings of the study to the research objectives, as well as to the literature on Enterprise Resource Planning (ERP) systems and procurement process efficiency.

### 5.1 Summary

The study had a sample size of 59 questionnaires that were distributed to respondents who were staff involved in procurement and using ERP systems at Nakasero Hospital Limited. They were from management, procurement, finance and plaza, stores, marketing, internal audit, ICT, and other departments that are involved in procurement activities. Of the 59 questionnaires, 35 respondents returned their questionnaires (59% response rate). Mugenda and Mugenda (1999) recommend that a response rate of over 50% is acceptable. The data were edited, coded, and statistical analysis was carried out using descriptive statistics like frequency, percentage, mean and standard deviation.

This study investigated the impact of ERP systems on improving procurement process efficiency at Nakasero Hospital Limited. A descriptive analysis was done for the dependent and independent variables of the study, namely procurement automation, procurement integration, and system usability and user acceptance.

The first of the specific objectives was to assess the impact of procurement automation on procurement process efficiency at Nakasero Hospital Limited. The results revealed that automation of procurement processes increases efficiency through the reduction of paper-based work, procurement errors and speed of procurement operations. Procurement automation allows for quicker processing of purchase requisitions, approvals and procurement documents, which leads to a reduction in procurement

process delays and an increase in productivity. Lower costs and higher productivity are two important benefits of automation and procurement efficiency. This suggests that as procurement automation increases, procurement efficiency increases due to lower transaction costs and efficient use of organisational resources.

The second specific aim was to determine the effect of integration of procurement functions on the procurement process efficiency. We found that procurement activities can be integrated with other business functions like finance, stores and supplier management through ERP systems. This leads to better coordination, communication and elimination of repeated activities in the procurement processes. An integrated procurement system also enhances the visibility and accuracy of procurement data and records, that enables monitoring and decision-making. These results are consistent with previous empirical evidence which suggests that system integration improves procurement efficiency by facilitating coordination and providing standardised processes.

The third specific aim was to investigate the effects of system usability and adoption of procurement efficiency. The results documented that the ease of use of the ERP system and training of users affect the effectiveness of the system's use by procurement employees. If users believe the ERP system is usable and useful in their jobs, they will accept the system, leading to enhanced procurement performance. Training and system support increase user trust and minimise errors in procurement transactions.

This study's results confirms that automation of procurement enhances performance and decision-making. Automation, they found, increases procurement efficiency by increasing the speed of approvals, visibility of data and a more structured procurement process.

## **5.2 Conclusion**

From the study, it can be deduced that ERP systems play an important role in improving procurement efficiency in Nakasero Hospital Limited. First, ERP systems help reduce the cost of procurement. The system automates procurement activities like processing requisitions, managing suppliers, and generating purchase orders, which results in less

manual effort and lower transaction costs. This results in better cost control and financial management of the procurement department.

Secondly, ERP systems enhance procurement process efficiency. Digital procurement integrates many procurement processes and removes delays associated with paper-based procurement processes. This allows procurement processes to be executed more quickly, a critical factor in healthcare organisations

Third, ERPs improve transparency and accountability of procurement activities. Easy access to procurement data makes it easier to monitor processes and minimise corruption or mismanagement. This enhances institutional governance and the legitimacy of procurement decisions.

In summary, this study shows that ERP systems are a critical technology for enhancing the efficiency of the procurement processes in health care organisations. When properly used, they help improve operational effectiveness, resource efficiency and procurement decision-making.

### **5.3 Recommendations**

This research also suggests that Nakasero Hospital Limited should invest in the upgrading of the ERP system to ensure that procurement processes are fully automated and integrated with other business processes in order to improve efficiency of procurement. Regular upgrades will allow the hospital to use new features of the system that enhance procurement effectiveness.

Also, ongoing staff training in procurement and the use of the ERP system. This will improve their knowledge on how to use the ERP system and will leverage the power of automation and reduce operational risks. And improving system monitoring and control measures in the ERP system. This will ensure procurement transactions are transparent, accountable and adhere to company procurement guidelines. Finally, management should ensure that all procurement and related departments take full advantage of the ERP system's capabilities. This will improve communication among departments, such as finance, stores and procurement departments, thus improving procurement efficiency.

#### **5.4 Areas for Further Research**

While this research has examined the impact of ERP systems on procurement efficiency at Nakasero Hospital Limited, there are various opportunities for future research including the challenges faced in the implantation of ERP systems in hospitals and the impact of these challenges on procurement process efficiency. Furthermore, research can be done on multiple hospitals/medical institutions to compare ERP system effectiveness in procurement management. Research can also be conducted on the impact of ERP system deployment on the performance of healthcare institutions, such as service delivery, patient satisfaction and financial performance.

## QUESTIONNAIRE

**Title:** Questionnaire on the Role of ERP Systems in Enhancing Procurement Process Efficiency at Nakasero Hospital Limited

**Instructions:**

This questionnaire is intended for academic purposes only. All information provided will be treated with strict confidentiality.

Please tick (✓) the option that best represents your opinion.

**Scale:**

1 = Strongly Disagree

2 = Disagree

3 = Not Sure

4 = Agree

5 = Strongly Agree

### SECTION A: DEMOGRAPHIC INFORMATION

1. Gender

Male  Female

2. Age group

Below 25  25–34  35–44  45 and above

3. Department

Procurement

Finance / Plaza

Stores

ICT

Other (specify): \_\_\_\_\_

4. Years of service at Nakasero Hospital
  - Less than 1 year
  - 1–3 years
  - 4–6 years
  - Above 6 years
5. Have you used the ERP system in procurement-related activities?
  - Yes  No

## **SECTION B: AUTOMATION OF PROCUREMENT PROCESSES**

### **Statement 1 2 3 4 5**

1. The ERP system automates purchase requisition processing
2. ERP reduces manual paperwork in procurement activities
3. Approval of procurement requests is faster using ERP
4. ERP automates supplier communication and ordering
5. Automation through ERP reduces procurement cycle time

## **SECTION C: INTEGRATION OF PROCUREMENT FUNCTIONS**

### **Statement 1 2 3 4 5**

1. ERP integrates procurement with finance department
2. ERP enables real-time data sharing between procurement and stores
3. Procurement data is consistent across all ERP modules
4. ERP improves coordination between departments involved in procurement

5. Integration through ERP reduces duplication of procurement tasks

## **SECTION D: USER ADOPTION AND SYSTEM USABILITY**

### **Statement 1 2 3 4 5**

1. The ERP system is easy to learn and use
2. I am comfortable using ERP for procurement activities
3. Adequate training was provided on ERP usage
4. ERP system interface is user-friendly
5. I regularly use ERP to perform procurement-related tasks

## **SECTION E: PROCUREMENT PROCESS EFFICIENCY**

### **A. Schedule Adherence**

#### **Statement 1 2 3 4 5**

1. Procurement activities are completed on time
2. ERP helps ensure timely delivery of procured items
3. Delays in procurement have reduced since ERP adoption

### **B. Accuracy of Transactions**

#### **Statement 1 2 3 4 5**

4. ERP reduces errors in purchase orders
5. ERP improves accuracy of invoices and payment records
6. Procurement records generated from ERP are reliable

### **C. Cost Effectiveness**

**Statement 1 2 3 4 5**

- 7. ERP helps reduce procurement operational costs
- 8. ERP supports better value for money in procurement
- 9. ERP improves monitoring and control of procurement expenses

**SECTION F: OPEN-ENDED QUESTION (Optional)**

- 1. In your opinion, what challenges affect the effective use of ERP systems in procurement at Nakasero Hospital?

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