Electronic procurement management practices, challenges, and its Effect on the operational performance of Ethiopian Agricultural Transformation Institute

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Declaration

I, Gezahegn Atnafu, declare that this thesis is a result of my independent research work on the topic entitled Electronic procurement management practices, challenges, and its Effect on the operational performance of Ethiopian Agricultural Transformation Institute. In partial fulfillment of the requirements for the Degree of Masters of Art in Logistics and Supply Chain Management at Addis Ababa University School of commerce. This work is original in nature and has not been presented for a degree in any other University. All the references are also properly recognized.

Signature _____ **Date** _____

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Confirmation

This is to certify that Gezahegn Atnafu has carried out this thesis on the topic entitled Electronic procurement management practices, challenges, and its Effect on the operational performance of Ethiopian Agricultural Transformation Institute under my supervision. Accordingly, I here assure that his work is appropriate and standard enough to be submitted for the partial fulfillment of the requirements for the award of the degree of Masters of Art in Logistics and Supply Chain Management.

Shiferaw Mitiku (PhD) _____ _____

Signature Date

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List of Abbreviations and Acronyms

Acronyms	Definition
EATI	Ethiopian Agricultural Transformation Institute
ATA	Agricultural Transformation Agency
MoA	Ministry of Agriculture
ERP	Enterprise Resource Planning
EPM	Electronic Procurement Management
CIPS	Chartered Institute of Procurement and Supply
ATI	Agricultural Transformation Institute
PO	Purchase Order
GTP	Growth and Transformation Plan
IT	Information Technology
EDI	Electronic Data Interchange
B2C	Business-to-Consumer
B2B	Business-to-Business
B2G	Business-to-Government
APP	Annual Procurement Plan

Abstract

Electronic procurement (e-procurement) is a process of managing procurement activities through electronic means aimed at optimizing operational performance. This research aimed to assess the current e-procurement practices, identify major challenges, and evaluate the role of e-procurement on the operational performance of the Ethiopian Agricultural Transformation Institute (EATI). Using a mixed-methods approach, data were collected through surveys and interviews with EATI headquarters staffs. The study employed both descriptive and explanatory research designs. Descriptive statistics (mean and standard deviation) and inferential statistics (such as regression coefficient analysis) were used to analyze the data with the help of SPSS software version 23. Questionnaires were distributed for a total of 144 respondents using Google Forms, and 134 were returned. In Addition, Six (6) director positions were interviewed. Achieving a 93% response rate. Data were collected using structured questionnaires for survey and an open-ended questionnaire for interviews, ensuring reliability through Cronbach's Alpha. The relationship between e-procurement practices and challenges (independent variables) and operational performance (dependent variable) was examined using a multiple linear regression models. The findings indicated that e-procurement practices in EATI significantly enhance operational performance, with Electronic Supplier Evaluation, electronic requisition, and electronic contract management showing the most substantial positive impact on the operational performance of the Ethiopian agricultural transformation institute. Conversely, challenges such as lack of training and high employee turnover negatively affect operational performance. Finally, the study recommended that EATI integrate all aspects of e-procurement optimally through enhanced training, robust support systems, and continuous evaluation to achieve effective operational performance.

Keywords: *E-procurement, Operational performance, Ethiopian Agricultural Transformation Institute (EATI)*

CHAPTER ONE

1. INTRODUCTION

This study begins by offering a comprehensive overview of electronic procurement management, emphasizing its significance in today's business environment. It emphasizes the growing dependence on technology-driven solutions for procurement processes and underscores the importance of effective management in this field. The section delves into the background of the study, explaining the context and rationale for investigating electronic procurement management practices, as well as the associated challenges and opportunities.

1.1. Background of the Study

Every company aspires to be consistently on the correct path for its business endeavors (Baldi &Vannoni 2011). The commercial and technological landscapes of today are changing so quickly that organizations need to reevaluate their key input strengths. It is becoming more and more evident how important procurement is to an organization's ability to compete, as the majority of its sales are spent on goods and services. In the traditional procurement process, organizations rely heavily on manual, paper-based methods to execute various stages of acquiring goods, services, or work.

The procurement process is defined as the steps the procurement team must take to acquire the right products and services for the organization. CIPS defines thirteen steps of the procurement process. Step 1: Define the business needs and create specifications. Step 2: Analyze the market and decide whether to buy. Step 3: Create a strategy and plan. Step 4: Pre-procurement market test and engagement, Step 5: Develop documentation PPQ and detailed spec, Step 6: Supplier selection to participate in the tender, Step 7: Issue tender documents, Step 8: Evaluate and validate bids and tenders. Step 9: Contract Award and Implementation. Step 10: Warehouse, logistics, and receipt. Step 11: Contract Performance and Improvement. Step 12: Supplier Relationship Management, and Step 13: Asset Management. (CIPS, 2023).

The shift towards electronic procurement is driven by a desire for increased efficiency, transparency, flexibility, and data-driven decision-making in procurement operations. As technology continues to advance, organizations are likely to further embrace digital solutions to stay competitive and responsive in the dynamic landscape of procurement. In recent years,

the integration of electronic procurement (e-procurement) practices and Enterprise Resource Planning (ERP) applications has become a critical focus for organizations seeking to enhance their procurement management processes.

Cabras (2010), study exhibits that, e-procurement systems have played a pivotal role in enabling governments worldwide to diminish expenses and enhance transparency within the procurement process. Regardless of the country, a significant portion of government budgets is allocated to the procurement of goods and services. As a major cost driver, achieving efficiency, effectiveness, and data-driven decision-making has become a priority.

While e-procurement offers numerous benefits, there are several challenges that governments and organizations face during implementation. As mentioned by NAWİ *et al*. (2016) there are factors contributing to challenges in the implementation of e-procurement such as technology, infrastructure, and legislation, environment; besides, resource constraints, and organizational and management characteristics. These factors collectively influence the success or failure of e-procurement implementations. The adoption of e-procurement in developing countries is influenced by a range of factors, including politics, socioeconomic conditions, government regulations, and organizational culture. (Zulkarnain, Muda and Kesuma, 2023). However, the introduction of e-procurement systems is hampered by perceived impediments such as technological constraints and a lack of resources. (N. Maamoun, 2018).

Studies have identified key challenges and critical success factors for e-procurement adoption in Ethiopia and Kenya. Shiferaw and Yessuf (2019) highlighted challenges such as supplier integration, manpower retention, infrastructure, and management commitment, while Mose (2013) emphasized the importance of employee and management commitment, IT reliability, and system performance. Mathenge and Wausi, (2018) underscored the significance of managerial support, stakeholder engagement, and system compatibility.

Therefore, the study aimed to assess the current e-procurement practices, identify major challenges, and evaluate the role of e-procurement on the operational performance of the Ethiopian Agricultural Transformation Institute (EATI).

1.2. Background of the organization

The background information for this organization has been entirely taken from the organization's bulletin and annual report. The Ethiopian Agricultural Transformation Agency (ATA) is the result of a major diagnostic assessment of Ethiopia's agriculture industry, conducted by the Ministry of Agriculture (MoA) and facilitated by the Bill & Melinda Gates Foundation in 2009. The analysis discovered that previous efforts to changing the sector were too limited, with many initiatives and programs concentrating on specific features, resulting in disjointed interventions that did not address the core causes of issues. The study's primary result, based on the experiences of other east and Southeast Asian nations in the 1960s and 1980s, was the necessity to establish a specialized body to help catalyze and drive faster agricultural growth.

Based on these recommendations, in December 2010 (2003 EFY) the Council of Ministers in Ethiopia passed Regulation 198/2003 establishing the Agricultural Transformation Agency (ATA) as the Secretariat to an Agricultural Transformation Council chaired by the Prime Minister. The ATA began operations in 2011 as a time-bound organization that aims to fulfill its mandate within a 25-30-year lifespan. Within this timeframe, the ATA is expected to work with partners to catalyze transformation, help build capacity in critical areas, and institutionalize key interventions, bringing about sustainable change. The ATA was not created to replace existing agricultural actors and interventions but rather to enhance the capability of key stakeholders to achieve agricultural transformation. As part of the refinement of the ATA's mandate at the beginning of GTPII, Regulation No. 380/2008, passed in March 2016, provided additional guidance on the ATA's scope of work. (ATA 2020-21 Annual Report)

In December 2021, the ATA transitioned from an agency to an institute, placing greater emphasis

On studies that aim to provide policy and system options to catalyze the transformation of Ethiopia's agriculture. With the transition, the ATI is no longer a time-bounded organization, which was initially designed for a 20-year lifespan. The Institute was officially launched as a successor to ATA in June 2022.

ATI's operating model is centered on four mandate areas. Firstly, it acts as a detective, uncovering critical roadblocks hindering development through research and proposing sustainable solutions for structural transformation. Secondly, it acts as a bridge builder, fostering robust connections between agricultural institutions and projects for a unified

development front. Thirdly, it acts as a capacity coach, identifying skill gaps and providing training, consulting, and technical support to strengthen the sector's institutional muscles. And lastly, it acts as a project champion, managing and leading innovative initiatives with specific deliverables that serve as catalysts for driving the ultimate goal: agricultural transformation. In essence, the ATI is a multifaceted engine ensuring the sector's sustained growth and success. (ATI 2022-23 Annual Report)

As documented by Feven (2019), ATI introduced an ERP system to its staff in mid-2015 to streamline internal processes and enhance operational efficiency. The ERP module has functional areas including Financial Management, Procurement Management, Inventory Management, Supply Chain Management, Customer Relationship Management (CRM), Human Resources Management (HRM), Business Intelligence, and Various "self–service" interfaces for customers, suppliers and/or employees. ATI dedicated the ERP system to the Operation teams (Finance, Procurement, Human Resources Management and Development, Information Technology, Logistics, and Admin departments) with a web-based self-service interface to the program teams to initiate different types of requisition required from operation teams such as Purchase requisition, payment requisition. Hence, Electronic procurement from ATI's perspective is the adoption of ERP.

1.3. Statement of the problem

In recent years, there has been growing interest from the government and local authorities in leveraging new technologies and communication methods within public administration. (Alvarenga *et al*., 2020) This has led to the digitization of various operations, including significant procurement functions and procedures. According to (Richard, 2021) The implementation of electronic procurement (e-procurement) systems have the potential to significantly enhance operational performance by improving decision making, reducing time and errors, and ensuring transparency and accountability, which are paramount.

Despite these potential benefits, many organizations face challenges that hinder the successful adoption and utilization of e-procurement systems. Number of studies have pointed out barriers to e-procurement deployment in developing countries. A study by Ngatman, Alderei, and Musa (2020) and Salifu *et al.* (2022) identified a lack of top management support, inadequate ICT support and facilities, financial and human resource constraints, insufficient knowledge and technical skills of the system, and resistance to change as major challenges.

Ayalew (2020) studied the effect of e-procurement practices on the Maintenance, Repair, and Overhaul (MRO) performance of Ethiopian Airlines Group. However, the study limited on the operational performance aspects of cost, quality, and delivery. To address this conceptual gap, this study extended the analysis of e-procurement practices by exploring additional dimensions of operational performance, such as effectiveness, flexibility, transparency and Decision-making.

A study conducted by Feven (2019) has primarily concentrated on the general implementation of enterprise resource planning (ERP) systems and their impact on the organizational performance without delving deeply into the specific touches and operational impacts of e-procurement systems in agricultural institutions. As per the knowledge of the researcher there is a lack of research specifically focused on the role of e-procurement on the operational performance in agricultural sector particularly within the context of Ethiopia.

Given the strategic importance of ATI in Ethiopia's agricultural sector, it is imperative to understand how e-procurement management practices can be optimized to enhance operational performance. Therefore, this study aims to address empirical gap by assessing the current e-procurement practices, identify major challenges, and evaluate the role of e-procurement on the operational performance of the Ethiopian Agricultural Transformation Institute (EATI). The findings will provide valuable insights that can inform the development of strategies to optimize e-procurement practices and overcome existing barriers, ultimately leading to improved operational outcomes for the EATI.

1.4. Research Questions

To steer this study in the proper direction and produce compelling results that would enable the researcher to formulate workable recommendations, the researcher developed the following research questions:

- How e-procurement is being practiced at the EATI?
- What are the major challenges of e-procurement practice at the EATI?
- What is the role of e-procurement implementation on operational performance of the EATI?

1.5. Objectives of the study

1.5.1. General Objective

This study's general objective is to evaluate electronic procurement management practices, to identify its challenges, and measure its role on operational performance at the Ethiopian Agricultural Transformation Institute.

1.5.2. Specific Objectives

The following objectives served as the focus of this study:

- To assess the e-procurement management practice of EATI
- To Identify the major challenges of e-procurement practice at EATI
- To examine the role of e-procurement practice on the operational performance of EATI

1.6. Significance of the Study

This study holds significant relevance for the Ethiopian Agricultural Transformation Institute across multiple dimensions. Firstly, it provides EATI with a comprehensive understanding of its e-procurement management practices, offering insights into current procedures, challenges, possibilities, and difficulties. This detailed grasp enables EATI to have a clear picture of its e-procurement. Additionally, the practical recommendations derived from the study offer actionable solutions to address issues surrounding e-procurement practices. Furthermore, the study plays a crucial role in reducing disparities related to e-procurement practices within EATI's ERP application.

1.7. Scope of the Study

Expanding this study to include additional organizations in the sector and a broader range of research settings would likely yield more comprehensive findings and suggestions. However, due to several constraints, surveying to this extent will be unmanageable. Therefore, this study will be limited to the Ethiopian Agricultural Transformation Institute (EATI) Head Office.

The study focuses on e-procurement practices, the challenges faced, and their impact on operational performance, specifically within the contexts of electronic requisition, electronic procurement planning, electronic ordering, Electronic Supplier Evaluation, and electronic contract management. The geographical scope of the study covers the Head Office of EATI. Addis Ababa.

1.8. Limitations of the Study

If information were gathered from a wider range of groups engaged in the agricultural sector, the research would have had greater generalizability. However, several constraining factors limited the study's scope. Subsequently, the researcher recommends that fellow specialists in the field examine additional resources to generate more comprehensive results. Despite these limitations, the study contributes to the existing body of knowledge in the field by providing valuable insights into the electronic procurement management practices, obstacles, and their role on operational performance of the Ethiopian Agricultural Transformation Institute.

1.9. Definition of Terms and Operational Definition

Conceptual Definition

The following terminologies are intentionally used in this study according to their functional definitions:

Electronic procurement (e-procurement): as defined by Croom, S. and Brandon-Jones, A., (2007) E-procurement, or electronic procurement, refers to the use of digital technology and internet-based systems to streamline and automate the procurement process. This encompasses the entire cycle of purchasing goods and services, from identifying needs and selecting suppliers to ordering, invoicing, and payment. E-procurement aims to enhance efficiency, transparency, and control within procurement operations by reducing manual tasks, minimizing errors, and facilitating real-time data and analytics for better decision-making. It often integrates with Enterprise Resource Planning (ERP) systems to ensure seamless coordination across various functions within an organization.

Procurement management: a strategic process of acquiring goods, services, or works from external sources in a manner that is efficient, cost-effective, and aligned with the organization's objectives. (Young, 2004)

Operational performance: it is the process of aligning units of business in an institution to enhance the combine working in order to attain major or business goals (Sudarsana, Sivarami and Mohan, 2015).

Challenges: is a situation that creates a gap between an organization's desired state and its current state. This gap can arise from internal limitations, external pressures, or a combination

of both. Challenges can be opportunities for growth and adaptation, or they can threaten the organization's survival if not addressed effectively. (Gioia, 1998).

Operational Definition

Requisition Management: refers to the process of allowing users to create, submit, and track procurement requisitions for goods and services. Includes workflow capabilities for routing requisitions through approval processes. Provides visibility into the status of requisitions and pending approvals.

Contract management: refers to the process of overseeing and administering contracts throughout their lifecycle, from initiation to completion. It involves various activities such as contract drafting, negotiation, execution, performance monitoring, compliance management, and contract renewal or termination. Effective contract management aims to ensure that contracts are properly implemented, obligations are fulfilled, risks are mitigated, and opportunities for value creation are maximized

Purchase Order: is a document provided by a buyer to a seller that specifies the types, quantities, and agreed-upon pricing for the items or services the buyer desires to acquire. It is a legally binding contract between the buyer and the seller that specifies the terms and conditions of the transaction.

Procurement planning: is the process of strategically identifying, acquiring, and managing the goods, services, or works an organization needs to achieve its goals. It involves a series of steps to ensure efficient and cost-effective procurement:

Evaluation: bid evaluation is a clear and concise statement that specifies the steps and criteria used to assess and compare bids submitted by potential suppliers in a formal procurement process. It outlines the objective methods for selecting the most suitable vendor based on predetermined factors.

1.10. Organization of the Study

The first chapter provided an introduction to this research. Relevant e-procurement management practices, challenges and operational performance theories have been discussed; and the problem statement, research questions, and objectives of the research have been presented. This chapter also offered a background to the study, as well as the practical importance, scope, and limitations of the study. The second chapter functioned as a

comprehensive literature review. It explored relevant e-procurement practices, challenges and operational performance theories. This chapter established the theoretical framework for the research, capturing the research questions under investigation. Chapter three focused on the research methodology. This section discussed the research design specifically chosen for this study. It identified the participants or subjects of the study, the data sources and collection methods, and the planned data analysis techniques. Chapter four presented the results, discussion, and interpretation of the research. This presents the data analysis, with the findings leading to answers to the study questions. Finally, Chapter five presents the summary, conclusion, and recommendations for possible future study directions and further discussion.

CHAPTER TWO

2. RELATED LITERATURE REVIEW

Introduction

This chapter centers on the researcher's literature review, encompassing an examination of studies conducted by other researchers about e-procurement practices, challenges inherent in e-procurement management, and the benefits derived from effective e-procurement management. Additionally, the chapter outlines the identified research gaps, presents a summary of the literature review, and constructs a comprehensive conceptual framework.

2.1. Theoretical literature review

The theoretical framework gives multiple advantages to a research activity; it provides the structure in displaying how a researcher defines his or her topic philosophically, epistemologically, methodologically, and analytically.(Grant & Osanloo, 2014).

Ravitch and Carl (2016) concur that the theoretical framework assists researchers in situating and contextualizing formal theories into their studies as a guide. This places their studies in a scholarly and academic context. Furthermore, the theoretical framework acts as the research's focal point and is related to the research topic being studied. As a result, it influences a researcher's choice of research design and data analysis strategy.

2.1.1. E-procurement

There is no universally agreed definition of e-procurement. In this study, e-procurement is defined as an ERP-based e-procurement system that includes the following automated procurement practices. Procurement planning, Purchase requisition, purchase order, Evaluation, Contract Management, and Contract administration.

Khorana *et al* (2015) explained that e-procurement includes purchase requests, authorization, bid processing and selection, ordering, delivery and payment between purchasers and suppliers. E-procurement is expected to improve government efficiency and access to information, reduce administrative and transaction costs, enhance competition (Ware *et al*., 2007).

In the past, some businesses used "procurement" interchangeably with "purchasing." However, purchasing is now viewed as just one part of a broader and more strategic procurement process.

Procurement entails every action involved in getting the commodities and services a firm needs to support its everyday operations, including sourcing, negotiating terms, buying supplies, receiving and inspecting goods as needed, and maintaining records of all the steps in the process. (Jenkins, 2023a)

Gugai (2017) mentioned that recent advancements in information and communication technologies (ICT) have revolutionized business operations, leading to increased productivity within organizations. This enhanced productivity, driven by the invention and adoption of new technologies and ideas, plays a crucial role in fostering economic growth. Electronic procurement (E-procurement) stands out as a technological innovation that streamlines corporate purchasing processes, reflecting the transformative impact of modern technology on business practices.

The shift from traditional procurement to electronic procurement has been driven by the need for increased efficiency, reduced costs, improved transparency, and better supplier management. Traditional procurement entailed manually controlling the function, relying heavily on paperwork, calling individuals for updates, and so on, to ensure that products and services arrived at their destination on time. The procedure was not only time-consuming, but it was also susceptible to interruptions caused by a variety of causes due to a lack of visibility. In contrast, e-procurement platforms streamline and speed up all source-to-pay operations, creating opportunities to generate more value and savings in the procurement process (Gep, 2019)

2.1.2. An overview of Electronic Procurement

The evolution of e-procurement represents a revolutionary shift in conventional procurement procedures, driven by the transformative power of digital technologies. This progression unfolds across discrete stages, each marked by distinct characteristics, including technological advancements, changing demands on businesses, and a growing recognition of the potential advantages offered by electronic procurement.

Moon, (2005) E-procurement is described as a comprehensive process in which governments utilize IT systems to make agreements for the acquisition of products or services (contracting), or to acquire items or to purchase products or services in exchange for payment (purchasing). According to Croom & Brandon-Jones (2007) provide a brief definition of e-procurement as

using Internet-based (integrated) ICTs for one or more of the stages of the procurement process, include search, sourcing, negotiating, ordering, receiving, and post-purchase analysis.

As Martie (2023) stated, E-procurement began in the 1980s, with the introduction of Electronic Data Interchange (EDI). A decade later, advancements in EDI enabled enterprises to create online catalogs for vendors. As Awati and Pratt (2021) described in the 1990s, further advancements in EDI technology facilitated the development of online catalogs for vendors. This allowed organizations to create digital repositories of products and services offered by various suppliers, providing a centralized platform for employees to browse and select items for purchase. The introduction of online catalogs marked a significant milestone in the evolution of e-procurement, as it expanded the scope of electronic purchasing beyond simple transactional exchanges to include a more comprehensive and user-friendly interface for procurement activities.

Captured within the broader framework of electronic commerce (EC), electronic procurement (EP) is fundamentally defined as the facilitation of business transactions across various domains, encompassing business-to-consumer (B2C), business-to-business (B2B), or business-to-government (B2G) interactions. This entails the online purchase and sale of goods, services, works, or supplies using the Internet and other networking and information systems. The technological infrastructures supporting electronic procurement include enterprise resource planning (ERP) systems and electronic data interchange (EDI) mechanisms. (Chan and Owusu, 2022).

At present, e-procurement encompasses a wide range of functionalities and processes, including supplier evaluation and selection, contract management, electronic orders, and payments. Organizations leverage e-procurement systems to manage their supplier relationships, negotiate contracts, place orders electronically, and facilitate secure and efficient payment transactions. These systems often integrate with enterprise resource planning (ERP) and supply chain management (SCM) software to provide end-to-end visibility and control over the procurement lifecycle. (Awati and Pratt, 2021)

The use of electronic procurement systems is on the rise among organizations around the world. As technology continues to advance, more companies are realizing the benefits of transitioning from manual procurement processes to electronic systems. Electronic procurement systems offer numerous advantages, including increased efficiency, cost savings, and accuracy. These

systems streamline the procurement process, automating tasks and reducing paperwork from requisition to payment. Furthermore, they give organizations better control and visibility over their procurement activities, leading to improved decision-making. The adoption of electronic procurement systems is fueled by the need for enhanced productivity, shorter cycle times, and improved supplier management. By leveraging technology, organizations are optimizing their procurement operations and gaining a competitive advantage in the market (Nani & Ali, 2020).

2.1.3. Electronic Procurement Practices

Many public sector organizations worldwide have recognized Electronic Procurement (e-procurement) as a top e-government agenda and have developed or are currently implementing buy-side e-procurement systems.(Vaidya, Sajeev, & Callender, 2006). Procurement and contract management have become increasingly important in the commercial industry as well as in the federal government (Vaidya, Sajeev, & Callender, 2006).

This implies that the purchasing function and the associated procurement processes in organizations, large and small, have traditionally been important areas of operations affecting business performance. In many organizations, procurement costs constitute a major part of the total costs (Chandrashekar *et al*., 2007).

Electronic procurement, or e-procurement, is a rapidly evolving field with significant potential to transform supply chain management (Essig, 2001). It encompasses a range of activities, from requisitioning to purchasing, and is increasingly being facilitated by electronic marketplaces (Van, 2022). These marketplaces offer a variety of data types and business models, adding value to the procurement process (Essig, 2001). Virtual supply chains, as part of e-procurement, are being explored as a means of enhancing business-to-business and business-to-public body electronic commerce (Kerridge, 1998). The benefits of e-procurement are numerous, including cost savings, process efficiency, and improved supplier relationships (Sitar, 2011).

In this study, an effort was made to elucidate the functional areas of electronic procurement by synthesizing information from a range of literature sources.

2.1.3.1. Electronic Requisition

E-sourcing has been described as a purchase request and its approval. Both phrases describe the procedure of purchasing goods or services from the chosen suppliers via email or intranet using an enterprise resource planning system (ERP). Employees who are far away from the

procurement process can also efficiently submit a request through electronic means. Giving staff members devices, such as personal digital assistants (PDAs) and other wireless gadgets that let them place orders and specify delivery locations, is one way to encourage distant ordering. Using technology and placing orders online helps an organization save time and money while also improving performance. (Faheem and Siddiqui, 2019)

As mentioned by N. Bhagyalakshmi, M. Kavya Dharshini and R. Revathi (2024) Users can create and submit purchase requests using e-requisition for the goods or services they need. It has options for choosing the quantity, preferred delivery date and any other relevant details. The creation, submission, and administration of the requests are made easier by e-requisition.

2.1.3.2. Electronic Procurement Planning

Electronic annual procurement planning involves strategically outlining and scheduling an organization's procurement activities for the upcoming year using electronic tools. It includes budget allocation, forecasting, supplier relationship management, sourcing strategy, risk assessment, and performance monitoring. By utilizing electronic procurement platforms, organizations can optimize their procurement planning, leading to enhanced efficiency, transparency, and improved supplier relationships. (Schoenherr and Tummala, 2007)

2.1.3.3. Electronic Supplier Evaluation

E-evaluation in e-procurement refers to the process of assessing and analyzing suppliers, bids, or proposals electronically to make informed decisions in selecting suppliers and awarding contracts. (Boafo and Ahudey, 2020) This stage involves utilizing digital tools and platforms to compare vendor capabilities, business risks, and electronic bids, ensuring transparency and efficiency in the supplier selection process

2.1.3.4. Electronic Ordering

According to Pop (2011) electronic ordering, also known as e-ordering, is the process of using an internet-based software system to create and approve purchasing requisitions, place orders, and receive the goods and services ordered. All employees of the company order necessary items through an e-catalog. As Kiroski and Gusev (2010) stated Electronic Ordering is a key component of e-procurement that enables the digital placement and management of purchase orders. Rather than relying on paper-based methods, electronic ordering involves the computerized, non-paper transfer of order documents between the buyer and supplier.

Another scholar Farrington and Lyson (2020) explained e-ordering is the processing of purchase orders or contracts by using electronic means so as to form consent between the parties.

Kiroski and Gusev (2010) continued through an electronic ordering system or interface, authorized users can directly place orders, without the need to go through a centralized procurement department. This decentralized process facilitates the digital exchange of order details, terms, and conditions, streamlining the overall procurement workflow. The electronic ordering system is typically integrated with other e-procurement functionalities, such as invoicing and billing, to further enhance efficiency and transparency. Any additional terms and conditions presented through the electronic ordering system are generally deemed void and not legally binding, as the system is designed to facilitate a standardized ordering process. By leveraging electronic ordering, organizations can optimize their procurement activities, reduce paperwork, and improve the overall effectiveness of their e-procurement operations.

2.1.3.5. Electronic Contract Management

The term electronic contract management or e-contractual refers to a contracting procedure that is at least partially assisted by information technology and is based on an electronic representation of the contract

Electronic Contract Management (e-CM) refers to the utilization of digital systems and technologies to automate and streamline the management of contracts within an organization's procurement and supply chain operations. This e-procurement component involves the creation, storage, and administration of contracts in an electronic format, moving away from traditional paper-based contract management practices. (Easy software Ag, 2023)

E-CM solutions typically provide a centralized platform to facilitate the entire contract lifecycle, from initiation and authoring to negotiation, monitoring, and archiving of concluded agreements. These systems often incorporate features such as document management, workflow automation, expiration alerts, collaborative workspaces, key performance indicator (KPI) tracking, reporting, and business intelligence capabilities. (Easy software Ag, 2023)

By adopting e-CM, organizations can enhance the efficiency and transparency of their contract management processes, ensure compliance with contractual terms and conditions, mitigate risks associated with manual contract handling, and improve the overall visibility and control over their procurement contracts. The integration of e-CM within the broader e-procurement

framework enables organizations to streamline their sourcing and supplier management activities, leading to improved supply chain performance and increased cost savings.

2.1.3.6. ERP Definition

Enterprise Resource Planning (ERP) is a comprehensive software system that integrates various business functions, such as sales, procurement, order management, finance, and human resources, into a single, shared database (Correa, 2015). It aims to streamline information flow and improve efficiency by replacing separate, non-integrated systems (Nah, 2001). ERP systems automate key business processes and have evolved from earlier systems like MRP and MRP II (Dcsedi, 2015). Despite challenges such as global compatibility and flexibility, ERP is a crucial tool for business process re-engineering and is widely used in both manufacturing and service industries (Gupta, 2000).

According to the UN procurement practitioner's handbook (2020) ERP systems are management information systems that integrate and automate various business practices, processes, and workflows within an organization. These systems typically handle activities such as manufacturing, logistics, distribution, inventory management, shipping, invoicing, and accounting. In the context of procurement, ERP systems often encompass the procure-to-pay process, which includes the workflow and approval process from requisition to approved purchase order, and culminates in the payment of the invoice. Essentially, ERP systems facilitate the control and management of a wide range of business activities, from sales and delivery to production, procurement, and human resources management.

2.1.4. Organization performance

According to Richardo (2001), organizational performance is defined as an organization's ability to achieve its stated goals and objectives.

Organizational performance can be categorized into financial and Operational performance. Financial performance involves assessing the changes in the financial state of an organization and the outcomes resulting from management decisions. (Gutterman, 2023). Numerous studies have assessed organizational performance from financial and market criteria perspectives such as return on investment (ROI), market share, profit margin on sales, ROI growth, sales growth, market share growth, and overall competitive standing.

On the other hand, Operational performance encompasses objectives beyond financial metrics, such as raising awareness among stakeholder communities, effectiveness and efficiency, transparency. These two categories together form a comprehensive framework for evaluating organizational performance, considering both financial and non-financial dimensions.

This study will concentrate on the operational aspect of organizational performance, which plays a crucial role in the efficient functioning and success of an organization. The following literature will present the operational aspect of organizational performance.

2.1.4.1. Operational Performance

Operational performance refers to the effectiveness and efficiency of an organization's day-to-day operations in achieving its goals. It involves the measurement and evaluation of how well an organization utilizes its resources to carry out its strategic plans and objectives. Operational performance includes factors such as Transparency, quality, cost saving, flexibility and efficiency, all of which contribute to the organization's ability to adapt to environmental changes, meet customer needs, and maintain a competitive edge in the market. (Najafabadi, Nikbakht and Shekarchizadeh, 2018)

2.1.4.2. Operational performance Dimensions

Flexibility

Flexibility is a multidisciplinary notion with varied meanings for different individuals. Flexibility is the ability to adapt, change, or modify approaches, methods, or strategies in response to varying circumstances, uncertainties, or requirements. It involves the capacity to adjust to new information, changing conditions, or unexpected challenges without compromising the overall objectives. (Saleh, Mark, and Jordan, 2009). In procurement, flexibility is the ability to adapt quickly and efficiently to changes in market conditions, business needs, or supplier dynamics. Flexible procurement practices allow organizations to adjust sourcing strategies, procurement processes, and supplier relationships as needed to respond to evolving requirements and opportunities.

Another scholar Alolayyan and Alyahya, (2023) defines Operational flexibility refers to an organization's ability to adapt to internal and external changes, creating competitive opportunities and reducing losses. It consists of dimensions like input flexibility, processing flexibility, and output flexibility, allowing organizations to communicate effectively with

suppliers and clients, enhancing productivity, and responding efficiently to uncertainties in the environment.

Transparency

Transparency in the context of procurement refers to the dedication to being truthful, open, and accessible at all times. It involves clearly communicating and promptly disclosing information about all aspects of the procurement process, including procurement methods, legislation, evaluation criteria, technical specifications, supplier rights, and other relevant details. (Overvest, 2024)

Transparency in procurement is essential for ensuring that all parties involved in the process have equal access to the same information, which helps to prevent corruption, promote fair competition, and increase trust between buyers and sellers. (Overvest, 2024)

Additionally, transparency in procurement fosters a stronger relationship between government and the private sector by promoting trust and understanding

Effectiveness

Effectiveness in procurement is a key performance indicator that contributes to improved procurement processes and performance (Patrick and Nyeko (2019). Effectiveness refers to an organization's ability to perform tasks efficiently, minimizing waste and errors. It involves process improvement, standardization, employee training, and continuous enhancement. (Kaplan and Norton 2005)

Effectiveness measures the extent to which an organization achieves its objectives and makes an impact. For non-financial organizations, this could mean assessing how well they meet their mission, the quality of services provided, or the level of positive change created in their community (Jackson, 2024).

These studies highlight the importance of effectiveness in achieving successful procurement outcomes.

Decision-making

Decision-making in e-procurement refers to the process of making choices and selecting actions within the electronic procurement environment. It involves utilizing electronic tools and systems to facilitate and optimize the procurement decision-making process (Aisbett, 2005;

Kar, 2009). Factors such as cost reduction, open bidding, and the use of reverse e-auctions are also crucial in this process (Yu, 2008). Alard (2002) further emphasizes the need for a strategic evaluation and planning framework for the deployment of innovative ICT solutions in procurement. These studies collectively underscore the importance of a comprehensive and strategic approach to decision-making in electronic procurement planning.

2.2. Empirical Literature Review

In this review, empirical studies focusing on electronic procurement management practices, challenges, and their impact on organizational performance were examined under the following subsections:

2.2.1. E-procurement Practices

In recent years, there has been growing interest from the government and local authorities in leveraging new technologies and communication methods within public administration. This has led to the digitization of various operations, including significant procurement functions and procedures. Electronic procurement, or e-procurement, refers to the use of digital tools and practices throughout the purchasing process. E-procurement is viewed as a powerful mechanism to enhance efficiency and generate cost savings. While e-procurement helps public sector organizations achieve their budgetary goals, it also increases the level of competition among suppliers to the public sector. (Cabras, 2010)

The adoption of e-procurement technology in government procurement can result in significant benefits. One of the key advantages is improved efficiency, as e-procurement can streamline the bidding and purchasing processes, reducing time and errors. This increased efficiency is particularly valuable for government agencies, where transparency and accountability are paramount. E-procurement also enhances transparency by making information on tenders, contracts, and spending more readily accessible to the public, promoting openness in government procurement. (Richard, 2021) Additionally, the open and accessible nature of e-procurement platforms ensures equity and fairness, as businesses of all sizes and locations can equally participate in the bidding process. This encouragement of local businesses is another significant benefit, as it supports the growth and development of the local economy. Overall, the adoption of e-procurement systems in government procurement can lead to a more efficient, transparent, equitable, and inclusive procurement process, ultimately benefiting both the government and the businesses it serves. (Richard, 2021)

A study by A. Ageshin (2001) revealed that the use of e-procurement has been found to significantly improve productivity and cost savings in various businesses. The Internet has brought about transformative changes in how businesses conduct their purchasing activities, leading to significant enhancements in productivity across various industries. Companies providing e-procurement solutions are now positioning themselves as facilitators of substantial cost reductions for manufacturers who heavily rely on tangible inputs within the economy. The overall efficiency and productivity of manufacturers are often closely linked to how effectively they manage their procurement processes. E-procurement platforms, also referred to as B2B marketplaces, electronic supply chains, trading hubs, or trading communities, represent online procurement networks where businesses aim to secure suppliers at the most competitive prices possible. (A. Ageshin, 2001). The study discusses the transformative effects of e-procurement solutions on corporate purchasing practices, emphasizing cost savings, efficient sourcing, and technological advancements in the procurement process.

Another Scholars Stoica, Ghilic-Micu and Mircea (2008) E-procurement applications consolidate the paper-based catalogs of multiple vendors by digitizing product information into a single, one-stop shopping source for direct and indirect goods and services.

E-procurement practices vary across different organizations and are influenced by a range of factors. Hawking (2003) found that while direct procurement tends to rely on traditional methods, indirect procurement is more likely to use e-procurement. This is further supported by Hawking (2004), who also noted that small-medium organizations are more agile in adopting e-procurement practices. The use of multi-vendor electronic catalogs is a key component of e-procurement, with Ginsburg (1999) providing a framework to evaluate different models. Gupta (2012) highlighted the benefits of e-procurement, including increased flexibility, cost reduction, and improved customer satisfaction, and noted that its adoption is likely to increase in the future due to these advantages and government regulations.

According to Pochynok, Muravskyi and Farion (2021) Electronic contracts and integrated electronic services can automate accounting processes in public procurement systems, enhancing business communications and minimizing costs.

E-Procurement systems offer mechanisms to control, simplify, and automate the procurement of goods and services from diverse suppliers. Automated procurement processes deliver benefits such as enhanced control over spending authorization, streamlined transaction

processing, and reduction of redundant stock. However, the success and viability of e-procurement in the public sector are contingent upon various factors. The study delves into the conditions necessary for the successful implementation of an e-procurement system, considering that every government activity involves the allocation of public funds for goods and services. Failures in e-procurement practices can lead to significant losses through incompetence, waste, and fraud, directly impacting the public. (Dorasamy, 2012)

The following electronic procurement practices are commonly observed in empirical literature reviews:

2.2.1.1. Electronic requisition

A purchase requisition serves as a formal request made within an organization to the procurement department for the acquisition of goods or services, initiating the procurement process. It encompasses essential details such as item descriptions, quantities, costs, and delivery requirements. Following approval, the purchasing department proceeds to procure the requested items from suppliers. Electronic procurement systems, like e-MRO and web-based ERP, play a pivotal role in streamlining this process by enabling the creation and approval of requisitions online, monitoring request statuses, and enhancing communication between requesters and procurement personnel (Schoenherr and Tummala, 2007).

2.2.1.2. Electronic procurement Planning

Annual procurement planning in e-procurement encompasses strategically scheduling procurement activities for a year using electronic procurement tools. It involves forecasting needs, setting goals, selecting suppliers, defining budgets, and planning timelines for procurement tasks throughout the year. Leveraging e-procurement technologies enables organizations to streamline planning, boost efficiency, and promote transparency in procurement operations. (Madzimure, Mafini and Dhurup, 2020)

2.2.1.3. Electronic Supplier Evaluation

A study by Maia and Tavares (2013) found that e-evaluation offers a significant improvement over traditional paper-based methods. Electronic data from shortlisted applicants' tenders is automatically extracted and evaluated using specialized software by a committee. This software facilitates a comprehensive assessment of each contractor's qualifications against statutory and commercial requirements, as well as award criteria. This e-platform streamlines

the entire evaluation process, eliminating the need for manual data extraction and paperwork, which are common challenges in traditional approaches.

E-evaluation in e-procurement involves collecting detailed information about suppliers online for assessments and transactions. This process includes evaluating supplier performance and capabilities to make informed procurement decisions. Organizations utilizing e-procurement tools need to assess and enhance their purchasing processes to maximize benefits. (Madzimure, Mafini and Dhurup, 2020)

The use of e-evaluation in e-procurement is a growing area of interest, with various studies exploring its potential. (Idrees, 2015) an automated evaluation approach for selecting the best offer in e-procurement, reducing the need for human intervention. (Naseebullah *et al*., 2012)

2.2.1.4. Electronic purchase orders

The use of electronic purchase orders has become increasingly common in today's business environment. (Schoenherr, T. and Tummala, R, V., 2007). This modern method of ordering and procuring goods offers several advantages over traditional paper-based systems. Some advantages of electronic purchase orders include improved efficiency, reduced errors, faster processing times, and enhanced transparency in the procurement process. (Schoenherr and Tummala, 2007) Additionally, electronic purchase orders allow for easier tracking and monitoring of orders, as well as streamlined communication between buyers and suppliers. Furthermore, electronic purchase orders provide a more secure and centralized method of documentation and record-keeping. (Min and Gallé, 2003). By utilizing electronic purchase orders, businesses can eliminate the need for physical paperwork, reducing the risk of document loss or misplacement. Overall, the empirical finding revealed that electronic purchase order is a practical and beneficial solution for businesses looking to optimize their procurement processes and improve operational efficiency.

2.2.1.5. Electronic contract Management

Electronic contract management refers to the use of technology and digital tools to streamline and automate various aspects of the contract lifecycle (Connolly, C. and Ravindra, P., 2006).

In the age of paper-based contracts, significant time, human resources, and financial investment were necessary to navigate the various stages of contract management, including drafting, signing, execution, and payment settlement. The introduction of electronic contracts

streamlines the laborious signing procedures inherent in paper-based contracts and enhances the efficacy of contract administration. (Guo *et al*., 2021)

A study by Krishna and Karlapalem (2008) revealed that the automation of contractual agreements and relationships through e-contracts presents a promising solution. However, a significant challenge lies in the translation of conventional contracts into executable e-contracts that enable real-time monitoring and management.

The transition from manual processes to electronic contract management is crucial for effective governance, helping entities avoid risks like data breaches and enhancing efficiency in contract management processes. (Krishna and Karlapalem, 2008)

2.2.2. E-procurement Challenges

There are different types of challenges hindering in the adoption of e-procurement suggested by different scholars among those:

2.2.2.1. Top Management support

A range of studies have identified barriers to the adoption of e-procurement. These barriers include lack of top management support (Yevu *et al*., 2021). Notably, Yevu *et al.* (2021) identified the lack of top management support as a significant barrier. In their study, Yevu *et al.* (2021) examined the extent to which managerial commitment poses a challenge to the adoption of e-procurement in the public sector in Kenya. The importance of top management support is further emphasized by Premathilaka and Fernando (2019) where it is identified as a critical success factor in Public Sector Organizations in Sri Lanka.

The lack of top management support is also highlighted as a barrier to the adoption of e-procurement in Ethiopia (Shiferaw-Mitiku-Tebeka and Yessuf, 2019). These findings underscore the need for strong leadership and support from top management in driving the adoption of e-procurement.

2.2.2.2. Manpower retention

Despite the fact that institutions have adopted e-procurement systems, Brandon-Jones and Kauppi (2018) suggest that there is a common problem of poor performance resulting from the implementation. Shiferaw-Mitiku-Tebeka and Yessuf (2019) conducted a study that explores the challenges and critical success factors related to e-procurement adoption in Ethiopia. The

study identifies several factors affecting successful implementation, including manpower retention and the need to retain skilled personnel's.

2.2.2.3. Infrastructure issues

Infrastructure-related issues have been found to be a major obstacle to the adoption of e-procurement in a number of studies. Rizki (2018) and Naeem (2021) both emphasize the significance of IT infrastructure in the implementation of e-procurement.

Additionally, a study conducted in Ethiopia by Shiferaw-Mitiku-Tebeka and Yessuf (2019) identifies infrastructure and information technology's dependability as the most critical success factor for e-procurement implementation in Ethiopia among five identified factors.

The studies collectively emphasize the significance of addressing infrastructure-related challenges to overcome barriers to e-procurement adoption and to ensure the successful implementation and operation of e-procurement systems.

2.2.2.4. Lack of Training and Skilled Personnel

The deficiency in knowledge and capacity among staff regarding electronic procurement processes has been identified as a significant barrier that impedes the successful implementation of e-procurement (Suzzy Krist Addo, 2019). This lack of expertise and understanding within the workforce poses a considerable challenge to the effective adoption and utilization of e-procurement practices within organizations. (Suzzy Krist Addo, 2019) Addressing this issue through comprehensive training programs and capacity-building initiatives is essential to overcome this obstacle and facilitate the seamless integration of electronic procurement processes into the operational framework of the organization. (Suzzy Krist Addo, 2019)

As stated by Salifu *et al.* (2022), it is imperative to acknowledge that the proficiency of procurement practitioners is a critical factor in the effective integration of e-procurement systems. The authors stress the importance of tackling issues related to practitioners' proficiency in order to ensure the successful execution of e-procurement procedures.

Another study conducted by Mohungoo, Brown, and Kabanda (2020) revealed that inadequate staff training in e-procurement contributes significantly to low utilization of electronic procurement systems. Important obstacles to the successful adoption of e-procurement practices include the lack of skilled ICT staff on site to handle technical e-procurement issues,

oversee service-level agreements, and operationalize the private-public partnership model for e-procurement implementation (Mohungoo, Brown and Kabanda, 2020).

Shiferaw-Mitiku-Tebeka and Yessuf (2019) state that one obstacle to Ethiopia's adoption of e-procurement is that staff members' proficiency with digital systems is limited. Underscoring the importance of implementing continuous and well-structured capacity-building programs to effectively tackle this challenge.

2.2.2.5. Resistance to change

According to a study by Pop (2011), the primary barriers encountered by users in adopting E-procurement systems are fear, lack of information system skills, and resistance to change. Users exhibit apprehension towards change due to their insufficient proficiency in E-procurement skills. The study suggests that to mitigate these barriers, managers must meticulously elucidate all stages of the implementation process and furnish users with tailored training sessions. This approach aims to empower users with the necessary skills and knowledge to navigate and embrace the E-procurement system effectively.

Employee resistance to leaving the familiarity of the manual system they have been using for years is a significant challenge identified in the context, especially in the implementation of e-procurement systems. This resistance affects their commitment to training and working on the new e-procurement system (Shiferaw-Mitiku-Tebeka and Yessuf, 2019).

2.2.3. The Role of Electronic Procurement on Operational Performance

A study by scholars Wafula, Paul, Namusonge and Fredrick (2017) defines operational performance management as a cyclical process implemented by leadership to assess, evaluate, and improve the organization's ability to deliver goods or services. It begins with measuring current performance through established programs and metrics. This data is then used to evaluate the organization's effectiveness in achieving its goals and efficiency in utilizing resources. Based on this evaluation, strategies are formulated to modify organizational behavior and infrastructure, aiming to reduce the discrepancy between current performance and desired outcomes. These improvement plans are then implemented to ultimately enhance the organization's effectiveness and efficiency in delivering its offerings.

Several studies have shown that using e-procurement can improve organizational performance. According to Tai, Ho and Wu (2009) study web-based e-procurement systems improves both

the operational efficiency dimension and the strategic dimension. Furthermore, partnerships improve both supplier and buyer performance.

Study findings by Gardenal (2013) highlighted the significance of e-procurement in improving operational performance, enhancing efficiency, and catalyzing positive transformations within public contracting authorities.

E-procurement has been identified as a potential driver of positive impacts on organizational performance, particularly in terms of efficiency, effectiveness, dematerialization, competitiveness, and transparency impact dimensions (Mishra, Devaraj and Vaidyanathan, 2013). The study finding underscores the potential of electronic procurement to enhance various aspects of organizational performance. However, the study suggests further research is needed to explore the specific mechanisms through which e-procurement contributes to these positive impacts and how these effects vary across different organizational contexts.

In a recent study by Masudin *et al.* (2021), evaluated the influence of e-procurement adoption on corporate performance in the Indonesian manufacturing industry. The study focused on four main factors: top management support, information quality, e-procurement implementation, and company performance. Through the research, it was discovered that top management support and information quality were crucial in effectively incorporating e-procurement practices. Furthermore, the study showcased that implementing e-procurement had a noteworthy positive influence on company performance, leading to improved efficiency, reduced costs, and enhanced operational effectiveness.

The study findings by Shiferaw-Mitiku-Tebeka and Yessuf (2019) on e-procurement adoption in Ethiopia highlighted critical success factors and challenges. Key critical success factors included top management support, transparency, ICT infrastructure, reliable monitoring systems, user acceptance, and employee commitment. Challenges identified were system integration issues, inconsistent internet connectivity, resistance to change, lack of e-procurement capacity among small suppliers, and manpower retention problems.

A study conducted by Feven (2019) identified numerous challenges hindering ERP implementation at the Ethiopian Agricultural Transformation Agency, including high employee turnover, significant costs, inadequate support, software issues, insufficient training, staff resistance, unclear strategy, data migration difficulties, and lack of leadership commitment. These factors highlight the complexities of ERP implementation and its potential

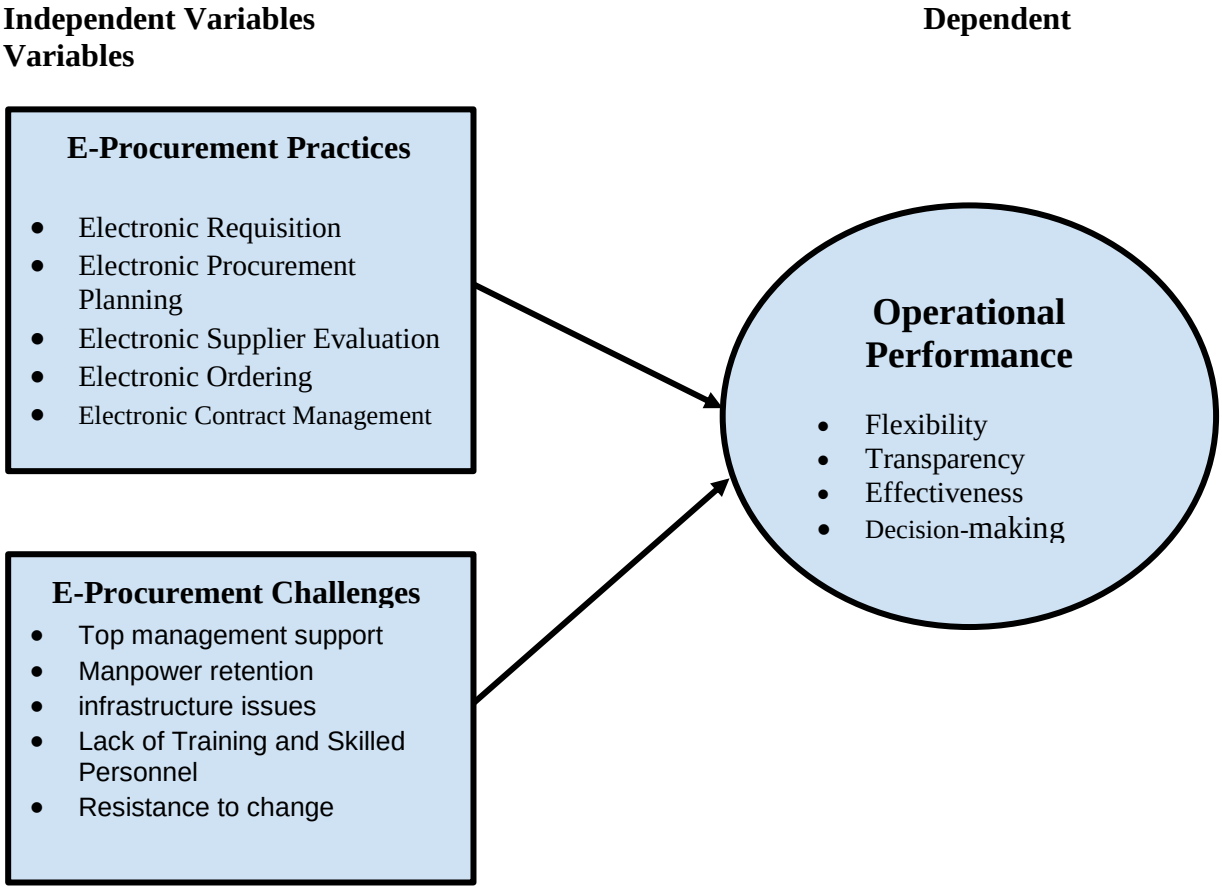
to disrupt operational efficiency and organizational performance. However, the study investigated the broader ERP system. The study also recommends future studies to focus on the specific module from the ERP system.

2.3. Conceptual framework

A conceptual framework serves as a researcher's proposed structure for understanding the natural progression of the phenomenon being studied (Camp, 2001). It encompasses key concepts, empirical research, and relevant theories to organize and systematize the researcher's knowledge (Peshkin, 1993). It outlines how the research problem will be investigated and offers an integrated perspective on the issue at hand (Liehr & Smith, 1999). From a statistical standpoint, the conceptual framework elucidates the connections between the primary concepts of the study and is logically structured to visually show the relationships between ideas (Grant & Osanloo, 2014).

The study used a conceptual framework (Figure 2.1) to connect dependent and independent variables.

Figure 2-1 Conceptual framework of the study



Source: adopted from (Wafula, Paul, Namusonge and Fredrick, 2017) with minor modification.

CHAPTER THREE

3. METHODOLOGY OF THE STUDY

Introduction

As paraphrased from the writing of Ishtiaq, M. (2019), a problem can be solved systematically using research techniques. It is a science that studies the best ways to do research. Research technique basically refers to the processes that scientists use to describe, explain, and forecast events. Consequently, the research design, data collection strategies, data analysis approaches, and ethical considerations used in this study are all described in this section.

3.1. Description of the Study Area

The Ethiopian Agricultural Transformation Institute (ATI), formerly known as the Agricultural Transformation Agency (ATA), is a strategy and delivery-oriented government institute created to help accelerate the growth and transformation of Ethiopia's agriculture sector, which is a key contributor to the country's GDP, exports, and workforce. (ATI 2022-23, Annual Report)

The ATI's work is centered on improving the livelihoods of smallholder farmers (SHFs) across the country for improved income, inclusiveness, resilience, and sustainability. The ATI works to transform the agriculture sector in Ethiopia by conducting policy and analytical studies, providing technical implementation support and capacity building, coordinating platforms to better integrate partners and projects, and designing and directly leading several innovative/pilot interventions. (ATI 2022-23, Annual Report)

The Institute joins forces with various stakeholders, including policymakers, researchers, farmers, and development partners, to support the implementation of agricultural development programs and initiatives. In addition, the ATI collaborates with national and international partners to facilitate knowledge exchange and learning opportunities. The Institute plays a crucial role in generating and disseminating information to support evidence-based decision-making in Ethiopia's agricultural sector. (ATI 2022-23, Annual Report)

ATI operates within four key mandate areas aimed at fostering sustainable agricultural development and facilitating structural transformation. Firstly, it conducts comprehensive studies to pinpoint systemic constraints within the agricultural sector and subsequently

proposes viable solutions to ensure long-term sustainability. Secondly, it endeavors to forge robust connections among various agricultural institutions and projects, fostering collaboration and synergy to enhance the efficacy of development efforts. Thirdly, the ATI identifies capacity gaps within the sector and devises tailored capacity-building programs encompassing training, consultancy, and technical support services to bolster institutional capabilities. (ATI 2022-23, Annual Report)

Moreover, the ATI spearheads innovative projects geared towards specific deliverables within the agricultural domain, serving as a catalyst for driving transformative change within the sector. Through these strategic initiatives, the ATI plays a pivotal role in advancing agricultural development, fostering resilience, and driving sustainable growth. By managing and leading these projects, the ATI not only addresses immediate challenges but also lays the groundwork for long-term agricultural transformation, ensuring the sector's continued relevance and prosperity in the face of evolving global dynamics. (ATI 2022-23, Annual Report)

ATI has strategically established four branch offices across regions in Ethiopia: Amhara, Oromia, Tigray, and the Southern Nations, Nationalities, and Peoples' Region (SNNPR). These branch offices serve as vital operational hubs for procurement activities within their respective regions, facilitating the acquisition of goods, services, and resources necessary for ATI's agricultural development initiatives.

The study focused on the Ethiopian Agricultural Transformation Institute, Head Office located in Addis Ababa.

3.2. Research Design

Research design plays a crucial role in ensuring the smooth execution of various research activities, optimizing the efficiency of the process, and maximizing the acquisition of valuable information while minimizing resource expenditure. Analogous to the necessity of a well-thought-out blueprint in construction for cost-effective and appealing architecture, a meticulously crafted research design serves as the roadmap for a research project. (Kothari, 2004)

Prior to the collection and analysis of data, a research design delineates the planned methods for data collection and the analytical techniques to be employed, aligning them with the research objectives and considering constraints such as personnel, time, and budget. It demands

careful preparation, as any oversight could potentially derail the entire project. The quality of the research design significantly influences the reliability of the findings, serving as the cornerstone upon which the entire research endeavor rests (Kothari, 2004).

The study was designed in explanatory cross-sectional research design which include descriptive. The descriptive study allowed the researcher to describe those data and helps to know the event that has been taking place whereas explanatory study examined the relationships and associations between variables (Independent and Dependent Variables).

3.3. Research Approach

The study was conducted using two approaches, these are quantitative and qualitative research Approach (mixed research). Creswell and Plano Clark's (2011) define "mixed research method" strategy associates or mixes both qualitative and quantitative elements. Mixed methods research is vital in producing high-quality data and evidence (Ryan, 2020). This approach offers a deeper and broader understanding of complex phenomena, offering more confidence in research findings and conclusions (Adu *et al*., 2022).

3.4. Population and Sampling

3.4.1. Population of the study

The target population of this study comprised the employees of the Ethiopian Agricultural Transformation Institute Head Office, all of whom use the system and are familiar with e-procurement practices and challenges

3.4.2. Sampling techniques

In this study, purposive sampling was used to select interview subjects, while random sampling was employed to choose questionnaire respondents. The researcher selected these techniques for the following reasons: first, random sampling gave every member of the population an equal chance to participate; on the other hand, purposive sampling assisted in selecting respondents who possessed particular skills that enabled them to provide highly relevant information through interviews.

3.4.3. Sample size determination

According to the EATI human resource department (2024), there are 241 employees in the Ethiopian Agricultural Transformation Institute's Head Office.

The Taro Yamane (1967) finite population sampling formula was used to determine the sample size for the study.

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

Where,

n = sample size

N = population size

e = error (0.05)

$$n = \frac{241}{1+241x(0.05)2}$$

$$n = \frac{241}{1+241x0.0025}$$

$$n = \frac{241}{1+0.6025}$$

$$n = \frac{241}{1.6025}$$

$$\mathbf{n = 150}$$

Taro Yamane Formula (Feven 2019)

Accordingly, from the total 241 populations the researcher approached 150 respondents.

3.5. Data Collection

Primary data was gathered from the Ethiopian Agricultural Transformation Institute's Head office employees across several departments through structured surveys and interviews. Before the complete questionnaire was distributed, a pilot study involving twenty participants was conducted to assess the questionnaire's clarity and relevance. Based on the pilot results, minor modifications were made, primarily related to Electronic Supplier Evaluation.

The researcher collected secondary data on the Ethiopian Agricultural Transformation Institute's e-procurement management practices from published works, papers, annual reports, and documents.

The data was gathered through two major methods. A close ended survey questionnaire and an open-ended semi-structured interview. Semi-structured interviews were conducted with Six (6)

directors from the operations vertical, including Procurement, Finance, HR, Sub Grant Management, Logistics and Admin, and IT. Therefore, among the total sample size of 150, Six (6) respondents were interviewed, and the remaining 144 respondents were approached to fill out the questionnaire survey, which was distributed using Google Forms.

3.6. Data Analysis Techniques

The data collected through the questionnaires was first coded and evaluated using the Statistical Packages for the Social Sciences (SPSS) version 23. According to Amin (2005), descriptive statistics provide techniques for numerically and graphically presenting information that gives an overall picture of the data collected. Descriptive statistics, including frequency, percentage, and mean, were utilized to summarize the data. To examine the relationships and associations between the variables under investigation, linear regression analysis was employed. According to Rosenthal, S. (2017), linear regression is a statistical method used to model the relationship between a dependent variable and one or more independent variables. Descriptive data were presented using the mean, standard deviation, frequencies, and percentages. Tables were used to present the findings.

3.7. Reliability and Validity Test

A pilot study using a limited sample size was carried out to detect potential problems with the phrasing or interpretation of the test items. Face validity was utilized to assess validity, while Cronbach's alpha was utilized to verify reliability.

Cronbach's alpha is a measure of internal consistency reliability used in research to assess the extent to which a set of items in a scale or questionnaire measure the same underlying construct. It is a statistical measure that indicates how closely related a set of items are as a group. (Dukes 2005)

A high Cronbach's alpha value above 0.70 suggests that the items in the scale are highly correlated and consistently measure the same construct. This indicates that the scale is reliable in measuring the intended concept. On the other hand, a low Cronbach's alpha value may indicate that the items in the scale are not consistently measuring the same construct, suggesting a lack of internal consistency. (Dukes 2005)

Table 3.1 Reliability Statistics

Cronbach's Alpha	N of Items
.806	**44**

Table 3.1 shows the overall reliability statistics for 44 items. The detailed list of each variables reliability statistics is shown below in Table 3.2.

Table 3.2 Reliability Item-Total Statistics

Variables	Cronbach's Alpha	N of Items
E-procurement practices	**.848**	**17**
E-procurement Challenges	**.786**	**15**
Operational performance	**.800**	**12**

3.8. Ethical Considerations

In adherence to ethical standards, appropriate ethical clearance was obtained from Addis Ababa University School of commerce for the data collection processes. Measures were implemented to ensure confidentiality, with no identifying information, such as respondents' names, recorded. Throughout the study, respondents were informed that the research and collected information would be used solely for academic purposes. They were assured that participation in the data collection process was voluntary and conducted at their discretion. Additionally, they were promised access to a copy of the research upon completion of the thesis. These ethical considerations were diligently addressed to uphold the integrity of the research process and respect the rights and privacy of the participants involved.

CHAPTER FOUR

4. RESULTS, DISCUSSIONS AND INTERPRETATION

Introduction

The objective of this study is to assess e-procurement management practices, identify challenges that hinder implementing e-procurement, and examine the role of e-procurement practices on the operational performance of the Ethiopian Agricultural Transformation Institute. The aim of this chapter is to present and interpret the results, as well as discuss the findings of the study.

4.1. Response Rate

Out of the 144 questionnaires distributed, 134 were returned. In addition, interviews were conducted with 6 management staff members, including the Procurement Director, IT Director, Finance Director, HR Director, Sub Grant Management Director and Logistics and Admin Director. This resulted in a 93% response rate, which is sufficient for conducting the analysis.

4.2. Demographic Information of the Respondents

The respondents' demographic characteristics are covered in this section. This encompasses the age, gender, experience, department, position and educational attainment.

Gender

Out of the 134 respondents of the study, 95 respondents are male, representing 70.9% of the sample, while 39 respondents are female, accounting for 29.1%. This shows a higher male participation in the survey.

Table 4.1 Demographic Information

Gender	Frequency	Percent
Male	95	70.9
Female	39	29.1
Total	**134**	**100.0**
Age	**Frequency**	**Percent**
20-30 years	11	8.2
31-40 years	67	50.0
41-50 years	42	31.3

Above 50 years	14	10.4
Total	**134**	**100.0**
Education	**Frequency**	**Percent**
Below Diploma	3	2.2
Diploma or equivalent	5	3.7
Bachelor degree	35	26.1
Masters and above	91	67.9
Total	**134**	**100.0**
Working experience	**Frequency**	**Percent**
1-5 years	82	61.2
6-10 years	37	27.6
Above 10 years	15	11.2
Total	**134**	**100.0**
Department	**Frequency**	**Percent**
Procurement	17	12.7
Information Technology	14	10.4
Logistics and Administration	17	12.7
Human Resources	7	5.2
Finance	17	12.7
Strategic Affairs	10	7.5
Sub- grant	3	2.2
Programs	49	36.6
Total	**134**	**100.0**
Position	**Frequency**	**Percent**
Director	11	8.2
Senior Manager	7	5.2
Manger	9	6.7
Senior Officer	54	40.3
Officer	37	27.6
Assistant	16	11.9
Total	**134**	**100.0**

Source: Survey Data, 2024

Age

Regarding the age distribution of the respondents, the majority fall within the 31-40 years category, which includes 67 respondents, making up 50.0% of the sample. This is followed by the 41-50 years category with 42 respondents (31.3%), above 50 years with 14 respondents (10.4%), and 20-30 years with 11 respondents (8.2%).

Education

In terms of educational qualifications, the majority of respondents hold a Master's degree or higher, totaling 91 respondents, which is 67.9% of the sample. This is followed by those with a Bachelor's degree at 26.1% (35 respondents), Diploma or equivalent at 3.7% (5 respondents), and those below Diploma at 2.2% (3 respondents). As shown on the Table 4.1. This indicate that majority of the respondent have good level of understanding to respond the questions

Experience

Examining the working experience of the respondents, 61.2% (82 respondents) have between 1-5 years of experience, 27.6% (37 respondents) have 6-10 years of experience, and 11.2% (15 respondents) have more than 10 years of experience.

Department

The distribution across departments shows that the majority of respondents are from the Programs teams, with 49 respondents (36.6%). This is followed by Procurement, Logistics and Administration, and Finance, each with 17 respondents (12.7%). The Information Technology department has 14 respondents (10.4%), Strategic Affairs has 10 respondents (7.5%), Human Resources has 7 respondents (5.2%), and Sub-grant has 3 respondents (2.2%). Which all are involved in the use of e-procurement systems.

Position

In terms of job positions, the majority are Senior Officers, making up 40.3% (54 respondents). Officers constitute 27.6% (37 respondents), Assistants 11.9% (16 respondents), Directors 8.2% (11 respondents), Managers 6.7% (9 respondents), and Senior Managers 5.2% (7 respondents). It indicates that the respondents were seniors and they had a good level of understanding to provide reliable response for the questioner.

4.3. E-procurement Practices of EATI: Descriptive Analysis

The first objective of this study was to assess the e-procurement management practices (E-requisition, E-procurement planning, E-evaluation, E-ordering, and E-contract management) of the Ethiopian Agricultural Transformation Institute (EATI). Respondents were asked to indicate whether they disagreed or agreed with statements regarding the e-procurement practices of EATI and rated their responses on a five-point Likert-type scale where: 1= Strongly Disagree, 2= Disagree, 3= Neutral, 4= Agree, and 5= Strongly Agree.

According to Yoseph (2022), the range of mean interpretation is 1-1.8 – very weak, 1.81-2.60 – Weak, 2.61-3.20 – moderate, 3.21-4.2 – highly, and 4.2-5 – very highly. The descriptive statistics analysis section of this paper was conducted in line to the above parameters.

Table 4.2 Descriptive statistical analysis of Electronic Procurement practices

(N=134)

A) Electronic requisition	**Mean**	**Std. Deviation**
The e-procurement system allows users to electronically submit purchase requisitions	4.49	.792
The e-procurement system allows users to easily attach relevant documents (e.g., specifications, TOR) to purchase requisitions	4.37	.923
Users can easily track the online status and workflow of their submitted purchase requests	4.32	.923
Grand Mean	**4.39**	
B) Electronic procurement Planning	**Mean**	**Std. Deviation**
Users can easily initiate and submit their annual procurement needs (e.g., goods or services) through the e-procurement system.	4.29	.754
The e-procurement system accurately consolidates and categorizes submitted annual procurement needs.	2.90	1.054
The e-procurement system supports online approval and publication of the Annual Procurement Plan.	2.94	1.122
Grand Mean	**3.38**	
C) Electronic Supplier Evaluation	**Mean**	**Std. Deviation**
Bid evaluation is conducted entirely electronically within the e-procurement system.	3.04	1.040
The system electronically evaluates bids against set criteria	3.08	1.048
The system is capable of ranking the bid result	3.25	1.107
Grand Mean	**3.12**	
D) Electronic Ordering	**Mean**	**Std. Deviation**
The system allows for sending purchase orders electronically to suppliers.	2.88	1.048
The system facilitates online approval of purchase orders	3.97	.941
Purchase order records are electronically stored within the system and easily retrievable.	4.03	.822
Grand Mean	**3.63**	

E) Electronic contract management	Mean	Std. Deviation
The system allows for recording and modifying contracts electronically.	3.02	1.037
The system allows for tracking and monitoring supplier performance.	3.27	.886
The system sends automated alerts before key deadlines, such as contract and performance bond expiration.	2.80	1.024
The system is capable of handling payment settlement to suppliers, including automatic payment processing, payment scheduling, payment tracking, and compliance with payment terms.	3.38	1.017
The e-procurement system supports collaboration on procurement contracts with suppliers.	2.96	.984
Grand Mean	**3.08**	

Source: Survey Data, 2024

According to Table 4.2 respondents have expressed strong satisfaction with the ability to electronically submit purchase requisitions, with a mean value of 4.49, users find it very easy to attach relevant documents, such as technical specifications and terms of reference (TOR), reflected by a mean value of 4.37, and finally the ability to track the online status and workflow of their requests also received a very high evaluation, with a mean value of 4.32.

Overall, the electronic requisition practice accounts for a grand mean value of 4.39. Hence, this implies that the electronic requisition process within EATI's e-procurement system is very highly practiced.

The study findings of Hassan, H. *et al*. (2014), which explored the extent of e-procurement use in New Zealand SMEs, revealed that creating purchase requisitions electronically, approving purchase requisitions electronically, and tracking orders electronically were practiced to a moderate extent. Therefore, in comparison to these findings, EATI demonstrates a significantly higher level of practice in electronic requisition processes.

As shown in Table 4.2 results indicate that users find it very easy to initiate and submit their annual procurement needs through the system, as reflected by a high mean value of 4.29, the system's ability to accurately consolidate and categorize collected procurement needs has a lower mean value of 2.90, revealing a moderate level of practice and an area for improvement. Additionally, the support for online approval and publication of the Annual Procurement Plan received a mean value of 2.94, indicating moderate effectiveness.

Overall, the electronic procurement planning practice accounts for a grand mean value of 3.38. Hence, it is highly practiced.
Similarly, a study by Desmond, B. P. (2022) on the effects of e-procurement practices on supply chain performance, regarding e-procurement planning found a grand mean value of 3.72, which similar to the above study's findings.

According, to the survey results bid evaluation process, conducted entirely electronically, has a mean value of 3.04, the system's ability to evaluate bids against set criteria received a similar mean value of 3.08. Additionally, the capability of ranking bid results had a slightly higher mean value of 3.25, indicating high practice in this aspect. These results reveal that while the Electronic Supplier Evaluation process is functional, there is potential for further enhancements to improve its effectiveness and user satisfaction.
Overall, the electronic supplier evaluation practice accounts for a grand mean value of 3.12. Hence, it is moderately practiced.
A study by Madzimure, J., Mafini, C., and Dhurup, M. (2020) conducted on small and medium enterprises in South Africa revealed that e-supplier evaluation is highly practiced by SMEs, with a grand mean score of 4.78. This indicates a need for EATI to enhance its e-supplier evaluation processes.

The analysis of electronic ordering in Table 4.2 reveals a mixed results. While some features have received high rank, others have fallen short of expectations. The ability to send purchase orders electronically received a relatively moderate rating of 2.88, indicating that this aspect of the electronic ordering process may require improvement. On the other hand, the online approval of purchase orders scored 3.97, and the electronic storage and retrieval of purchase order records scored an even higher 4.03, both falling into the high range.
Overall, the electronic ordering practice accounts for a grand mean value of 3.63. Hence, it is highly practiced.
The study findigs by Barasa, J.N. and Namusonge, G., (2017) in County Government of Kakamega, Kenya revealed that e-ordering practice was low, due to many challenges. Hence, relatively EATI practiced the electronic ordering better.

Table 4.2 indicate that the ability to record and modify contracts electronically is rated at 3.02, tracking and monitoring supplier performance at 3.27, and handling payment settlements at

3.38. However, even if it all falls under moderate, sending automated alerts before key deadlines 2.80 and supporting collaboration with suppliers 2.96 are rated low.
Overall, the electronic contract management practice accounts for a grand mean value of 3.08. Hence, it is moderately practiced.

A study by Sharma (2021) underscores the potential of e-contract management in enhancing operational performance. Switching from manual to electronic contract management is vital for effective governance, enabling organizations to mitigate risks and improve the efficiency of their contract management procedures. (Krishna and Karlapalem, 2008)

Table 4.3 Summary of Respondents on E-procurement Practices

(N=134)

E-procurement practices	No of Items	Mean
Electronic Requisition	3	4.39
Electronic Procurement planning	3	3.38
Electronic supplier evaluation	3	3.12
Electronic Ordering	3	3.63
Electronic Contract Management	5	3.08
Grand mean	**17**	**3.52**

Source: Survey Data, 2024

Table 4.3 shows Electronic requisition, with a mean value of 4.39, is very highly practiced, suggesting strong functionality and high user engagement in handling electronic submissions of purchase requisitions and related tasks, electronic ordering, with a mean value of 3.63, demonstrates strong capabilities and high respondent satisfaction. However, areas such as procurement planning mean value of 3.38, evaluation mean value of 3.12, and contract management mean value of 3.08 are moderately practiced, indicating opportunities for enhancement to achieve better efficiency and user satisfaction across all e-procurement functions.

Overall, the utilization of e-procurement practices at EATI, accounting for an overall grand mean value of 3.52, indicating that EATI highly practices e-procurement.

In addition, the interview findings revealed various aspects of the EATI e-procurement system's functionality and limitations as observed by six interviewees. The respondents were coded this way: P1, P2, P3, P4, P5, and P6.

According to (P1), *"EATI utilizes an ERP-based e-procurement system to manage a variety of procurement activities. The system streamlines e-requisitions by enabling departments to submit and track requests electronically. Additionally, it facilitates e-procurement planning by allowing departments to submit their annual needs."* (P1) highlighted that the system currently requires manual consolidation of these needs and lacks automation for approving and publishing the Annual Procurement Plan. (P2) discussed the e-evaluation capabilities of the ERP-based e-procurement system used by EATI and stated, *"The system applies least cost and weighted average methods for supplier selection, automatically selecting bids based on defined criteria. This process appears efficient and streamlined."* Electronic procurement practice at EATI regarding the e-ordering, (P3) shared, *"The system generates purchase orders with unique serial numbers. However, it is unable to send these orders electronically to suppliers. This hinders the full potential of the system's e-ordering capabilities."*

According to (P4), *"The system facilitates e-contract management through a centralized platform for storing documents and tracking milestones. While this improves performance, concerns remain. The system lacks automated alerts for contract renewals and expiring performance bonds."* (P4) also noted that this deficiency could pose compliance risks. (P5) emphasized another issue related to e-contract management. (P6) stated, *"The inability to modify existing contracts within the system presents potential compliance risks. This inflexibility could lead to significant issues if contract terms need adjustments."*

Overall, e-procurement practiced at EATI highly. The system offers valuable functionalities that streamline specific aspects of the procurement process. However, addressing limitations such as manual consolidation, lack of automated approvals, and limited e-ordering capabilities could significantly enhance overall efficiency and reduce compliance risks.

4.4. Challenges of E-procurement Practices of EATI: Descriptive Analysis

The second objective of this study was to identify the major challenges that hinder e-procurement management practices (Top Management Support, Manpower Retention, Infrastructure Issues, Lack of Training and Skilled Personnel, and Resistance to Change).

Table 4.4 Descriptive Statistical Analysis on Challenges of E-procurement Practices

A) Top Management Support	Mean	Std. Deviation
There is Lack of commitment from top leadership toward Decision Making	2.71	.972
There is Lack of top management support in organizing training on e-procurement	3.20	.940
There is Lack of top management support in allocating resources for e-procurement	3.16	.857
Grand mean	**3.02**	
B) Manpower retention	**Mean**	**Std. Deviation**
There is Turnover of key people with the trust area of e-procurement	4.18	.941
There is Employee turnover and difficulty retaining the skilled staff for e-procurement tasks	4.19	.494
Experienced procurement employee frequently changes positions and move to different departments	3.59	1.066
Grand mean	**3.99**	
C) Infrastructure Issues	**Mean**	**Std. Deviation**
There is Inadequate IT infrastructure (poor internet connection, Insufficient Hardware, or Software capacity) to support e-procurement	2.46	1.121
There is Difficulty integrating the e-procurement system with other enterprise (Finance, Inventory management and supplier system) system	2.79	1.104
Old IT Equipment of the organization are not integrated with a procurement system	2.74	.925
Grand mean	**2.66**	
D) Lack of Training and Skilled Personnel	**Mean**	**Std. Deviation**
There is Inadequate Training on e-procurement	4.49	.663
There is Inadequate Ongoing Support to procurement staffs	4.17	.673
There is a lack of skilled ICT staff to support e-procurement practices	3.19	1.208
Grand mean	**3.95**	
E) Resistance to change	**Mean**	**Std. Deviation**
There is Employee resistance to change from traditional procurement method to e-procurement	2.81	1.079
There is Lack of User-Friendly system Interface for e-procurement practices	2.90	1.010
There is Limited employee technical skill for e-procurement practices	3.11	.986
Grand mean	**2.94**	

Source: Survey Data, 2024

According to Table 4.4, the result reveals the challenges related to top management support that affect e-procurement practices at EATI, where the mean for the lack of commitment from top leadership toward decision making is 2.71, indicating a moderate level of commitment with significant room for improvement, and the mean for the lack of top management support in organizing training on e-procurement is 3.20, suggesting moderate support but highlighting the need for increased training initiatives, while the mean for the lack of top management support in allocating resources for e-procurement is 3.16, reflecting moderate support for resource allocation.

Overall, the challenge of top management support accounts for a grand mean value of 3.02. Hence, this challenge is moderate.

Similarly, a study by Afolabi, A. *et al*. (2019) investigating e-procurement adoption in the Nigerian construction industry found a high grand mean value of 3.84 regarding top management commitment and support. This suggests a greater challenge compared to the findings in this current study.

Table 4.4 highlights manpower retention challenges the e-procurement practices of EATI, revealing high turnover and difficulty retaining skilled staff. The mean for the turnover of key people with trust areas of e-procurement is 4.18, suggesting this is a high challenge, The mean for employee turnover and difficulty retaining skilled staff for e-procurement tasks is 4.19 is high also, indicating a serious issue. Lastly, the mean for experienced procurement employees frequently changing positions is 3.59, showing a high level of challenge, comparing to others it is slightly lower.

Overall, the challenge of manpower retention accounts for a grand mean value of 3.99. Hence, this challenge is high.

The findings of Shiferaw-Mitiku-Tebeka and Yessuf (2019) also revealed that several factors impact the successful implementation of e-procurement in Ethiopia, including manpower retention and the necessity of retaining skilled personnel.

Table 4.4 shows the infrastructure related issues that challenge e-procurement practices of EATI. The mean for inadequate IT infrastructure is 2.46, indicating as moderate challenge, The

mean for difficulty integrating the e-procurement system with other enterprise systems is 2.79, suggesting this is a moderate challenge. The mean for old IT equipment not integrated with the procurement system is 2.74, indicating a moderate issue.
Overall, the challenge of infrastructure issues accounts for a grand mean value of 2.66. Hence, this challenge is moderate.

A study by Ngatman, N., Alderei, H., and Musa, H. (2020) highlighted the challenges faced by procurement units in implementing new e-procurement systems, particularly for those lacking infrastructure, ICT support, and facilities. These challenges impacted the entire e-procurement process, especially for Small and Medium Enterprises (SMEs).

According to Table 4.4, the lack of training and skilled personnel in e-procurement practices at EATI is a significant challenge, with the mean for inadequate training on e-procurement at 4.49, indicating a very high challenge, and the mean for inadequate ongoing support to procurement staff at 4.17, also reflecting a high challenge, while the mean for the lack of skilled ICT staff to support e-procurement practices is 3.19, indicating a moderate it's not critical challenge.
Overall, the challenge of lack of training and skilled personnel accounts for a grand mean value of 3.95. Hence, this challenge is high.

The above results are supported by the study findings conducted by Adebayo, V. O. and David Evans, R. (2015). E-procurement adoption in developing countries, specifically in the Nigerian public sector, is challenged by issues such as lack of e-procurement knowledge, training, and ongoing support. These barriers to adoption need to be addressed to enhance the effectiveness of e-procurement implementation in public procurement processes. Similarly, Somasundaram's (2008) study in India reveals several challenges impacting e-procurement implementation, including a lack of skilled personnel, resistance to change, and inadequate IT and networking infrastructure.

Table 4.4 explores resistance to change, the mean for employee resistance to change from traditional procurement methods to e-procurement is 2.81, showing a moderate but significant resistance to change, and the mean for the lack of a user-friendly system interface for e-procurement practices at 2.90, suggesting a moderate issue, while the mean for limited employee technical skill for e-procurement practices at 3.11, indicating a moderate challenge.

Overall, the challenge of resistance to change accounts for a grand mean value of 2.94. Hence, this challenge is moderate.

A study by Salifu, Z. *et al.* (2022) investigating employee resistance challenges to e-procurement in the Ghanaian public sector found a grand mean value of 3.38.
Another study by Shiferaw-Mitiku-Tebeka and Yessuf (2019) highlights the barriers in implementing e-procurement in Ethiopian public organizations. These challenges resistance to change with a grand mean of 3.54 and lack of commitment. These barriers are obstacles for the smooth implementation of e-procurement practices. This indicates a relatively high level of resistance compared to the findings of this study.

Table 4.5 Summary of Descriptive Statistics for Challenges in E-Procurement Practices

Challenges of E-procurement Practice	**No of Items**	**Mean**
Top Management Support	3	3.02
Manpower Retention	3	3.99
Infrastructure issues	3	2.66
Lack of Training and Skilled Personnel	3	3.95
Resistance to Change	3	2.94
Grand mean	**15**	**3.31**

Source: Survey Data, 2024

Table 4.5 shows the summary of challenges impacting e-procurement practices at EATI, Top management support, with a mean value of 3.02, is moderately influential, reflecting moderate commitment and resource allocation. Manpower retention, with a mean value of 3.99, is highly challenging the e-procurement practices, indicating severe challenges in retaining skilled personnel. Infrastructure issues, with a mean value of 2.66, are moderately challenging, suggesting that IT infrastructure and integration issues are present but not critical. The lack of training and skilled personnel, with a mean value of 3.95, is highly challenging, highlighting significant gaps in training and support. Lastly, resistance to change, with a mean value of 2.94, is moderately challenging the implementation of the e-procurement management practices, indicating some resistance to adopting new procurement methods but with manageable

impacts. Despite these challenges the overall grand mean value of 3.31, indicating that challenges are highly influential. The findings highlight areas needing targeted improvement.

Overall, the challenges of e-procurement practices at EATI account for a grand mean value of 3.31. This indicate these challenges are highly influential.

In addition, the interview analysis revealed some obstacles hindering the implementation of the e-procurement system. According to (P1), while initial management support in terms of finances and training was evident, their day-to-day involvement appears limited. (P2) and (P3) emphasized that employee turnover significantly impacts implementation. "*EATI invests in training employees to utilize the system effectively. However, when experienced staff leave, and new hires require additional training and resources to become familiar with the system. The absence of retention programs or incentives for these valuable employees leads to knowledge gaps and operational disruptions*," (P2) explained. (P4) pointed out that the current training seems inadequate. "*Although initial training sessions are provided, the lack of ongoing support and follow-up results in employees struggling to use the system effectively*," (P5) and (P6) observed that resistance to change persists among some procurement officers who prefer traditional procurement methods. (P5) remarked, "*Efforts to highlight the advantages of the system have not fully addressed this obstacle*."

By addressing these challenges enhancing management involvement, implementing staff retention initiatives, delivering comprehensive training with ongoing support, and overcoming employee resistance EATI can significantly improve its e-procurement implementation and achieve a more streamlined procurement process.

4.5. Role of E-procurement practices on the operational performance: Descriptive Analysis

The third objective of this study was to examine the role of e-procurement management practice on the operational performance of Ethiopian agricultural transformation institute.

Table 4.6 Descriptive Statistics of the Role of E-Procurement on the Operational Performance of EATI.

(N=134)

	Statement	Mean	Std. Deviation
Flexibility	Due to the e-procurement implementation employees can initiate and track procurement requests remotely.	3.90	.866
	The system streamlines approval workflow, leading to faster processing of procurement requests.	4.03	.636
	The system's flexibility allows for easy accommodation of new changes, such as making contract amendments or changing delivery times.	3.33	.899
	Grand mean	**3.75**	
Transparency	Monitoring procurement data has been made easier as a result of the e-procurement system.	3.81	.770
	E-procurement implementation has increased transparency in the procurement process.	3.97	.693
	Publication and approval of procurement plan became easy due to the implementation of e-procurement.	3.88	.649
	Grand mean	**3.89**	
Effectiveness	E-procurement implementation reduces error in procurement transactions.	3.93	.640
	Orders are easily processed as a result e-procurement implementation.	3.91	.677
	E-procurement system eliminates the need for paper documents in the procurement process.	3.99	.958
Decision-Making	**Grand mean**	**3.94**	
	E-procurement implementation has contributed to improved decision-making in the procurement process.	4.10	.728
	Evaluating and ranking bidders became easy due to e-procurement implementation.	3.57	.844
	The system provides access to real-time data for decision-making purposes.	3.96	.803
	Grand mean	**3.88**	
	Mean of Mean	**3.87**	

Source: Survey Data, 2024

According to Table 4.6 E-procurement system has enabled employees to initiate and track procurement requests remotely, streamlined approval workflows for faster processing, and

allowed for easy accommodation of changes such as contract amendments or delivery time adjustments.
Overall, flexibility accounts for a grand mean value of 3.75.

The implementation of e-procurement has made monitoring procurement data easier, increased transparency in the procurement process & simplified the approval of PO and procurement plans.
Overall, transparency accounts for a grand mean value of 3.89.

E-procurement has reduced errors in procurement transactions, facilitated easier order processing, and eliminated the need for paper documents.
Overall, effectiveness accounts for a grand mean value of 3.94.

The system has contributed to improved decision-making in the procurement process, made evaluating and ranking bidders easier, and provided access to real-time data for decision-making purposes.
Overall, the grand mean for decision-making is 3.88, indicates that e-procurement practices have highly improved the operational performance of decision making at EATI.

Generally, the grand mean for operational performance is 3.87, reflecting a generally positive impact of e-procurement on the operational performance of EATI. The highest impact is observed in the effectiveness category, followed closely by transparency and decision-making, while flexibility shows a slightly lower but still positive impact.

Additionally, the interview results indicate that the implementation of e-procurement has had a positive impact on overall operational performance. (P1) mentioned the flexibility of the system, highlighting that "*it enables users to submit procurement needs and requests online from any location.*" (P2) noted that "*the e-procurement practice's real-time data capabilities support decision-making*." Transparency has also been boosted, as "*bids are evaluated by the system without room for changes, reducing chances of fraud and ensuring accountability*."
(P3) observed that "*automating tasks has improved procurement processes by decreasing paperwork and processing durations and reducing errors, allowing procurement staff to focus on strategic activities*." (P4) stated that "*decision-making has been positively influenced by the e-procurement practices, leading to more informed, timely, and optimal procurement decisions*." (P5) highlighted the practices' ability to enhance operational performance by ensuring that "*procurement tasks are completed accurately and efficiently. This improvement allows the procurement team to allocate more time to high-value activities*." (P6) emphasized

that overall operational performance has been positively impacted by the e-procurement practices. "*The e-procurement practice's ability to provide real-time updates and streamline procurement activities has led to more effective and timely decision-making processes*."

By leveraging the strengths of the e-procurement practices and addressing its current limitations, EATI can continue to enhance its procurement processes, leading to greater efficiency and reduced compliance risks.

4.6. Correlation

Correlation measures the linear relationship between variables, ranging from -1 to 1, where positive values indicate a positive relationship, negative values indicate a negative relationship, and zero indicates no correlation. Using the Pearson Correlation Coefficient, the relationship between e-Procurement practices and Operation performance can be assessed. Correlations are interpreted as weak (.01 to .30), moderate (0.30 to 0.70), strong (0.70 to 0.90), and very strong (0.90 to 1.00), though factors like sample size should also be considered (Bobbitt, 2019)

Table 4.7 Correlation Matrix

Variables	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**	**(9)**	**(10)**	**(11)**
(1) Electronic Requisition	1										
(2) Electronic Procurement Planning	0.091	1									
(3) Electronic Evaluation	0.196*	0.191*	1								
(4) Electronic Ordering	0.229**	0.344**	0.538**	1							
(5) Electronic Contract Management	0.233**	0.341**	0.524**	0.547**	1						
(6) Lack Of Top Management Support	-0.184*	-0.003	-0.012	-0.073	0.041	1					
(7) Lack Of Infrastructure	-0.220*	-0.091	0.066	-0.058	0.001	0.426**	1				
(8) High Employee Turnover	-0.100	-0.159	-0.167	-0.174*	-0.181*	0.011	0.061	1			
(9) Lack Of Training And Skilled Personnel	-0.126	-0.259**	-0.085	-0.083	-0.244**	0.219*	0.203*	0.193*	1		
(10) Resistance to change	-0.141	0.013	0.051	-0.103	0.049	0.385**	0.591**	0.047	0.273**	1	
(11) Operational Performance	0.393**	0.321**	0.556**	0.473**	0.593**	-0.035	-0.125	-0.313**	-0.325**	-0.057	1

***. Correlation is significant at the 0.01 level (2-tailed).*

**. Correlation is significant at the 0.05 level (2-tailed).*

Source: Survey Data, 2024

The correlation test results reveal significant relationships between various e-Procurement practices, challenges, and operational performance. Firstly, Electronic Requisition (1) shows positive correlations with Electronic Evaluation (0.196*), Electronic Ordering (0.229**), Electronic Contract Management (0.233**), and Operational Performance (0.393**), suggesting that effective electronic requisition processes are associated with improvements in these areas. Additionally, it negatively correlates with Lack of Top Management Support (-0.184*) and Lack of Infrastructure (-0.220**), indicating that robust electronic requisition processes may mitigate these challenges.

Electronic Procurement Planning (2) demonstrates positive correlations with Electronic Evaluation (0.191*), Electronic Ordering (0.344**), Electronic Contract Management (0.341**), and Operational Performance (0.321**). This suggests that well-planned electronic procurement contributes to better performance and management processes. Furthermore, it shows a negative correlation with Lack of Training and Skilled Personnel (-0.259*), highlighting that effective procurement planning is associated with fewer deficits in training and skills.

Electronic Evaluation (3) positively correlates with Electronic Ordering (0.538**), Electronic Contract Management (0.524**), and Operational Performance (0.556**). This implies that comprehensive electronic evaluation enhances ordering, contract management, and overall performance. Although it negatively correlates with High Employee Turnover (-0.167) and Lack of Training and Skilled Personnel (-0.085), these correlations are not always significant.

Electronic Ordering (4) shows positive correlations with Electronic Contract Management (0.547**) and Operational Performance (0.473**), indicating that efficient electronic ordering practices enhance contract management and performance. It also negatively correlates with High Employee Turnover (-0.174*) and Lack of Training and Skilled Personnel (-0.083), suggesting potential operational improvements with better ordering systems.

Electronic Contract Management (5) exhibits a strong positive correlation with Operational Performance (0.593**), indicating that proficient electronic contract management significantly boosts performance. It negatively correlates with High Employee Turnover (-0.181*) and Lack of Training and Skilled Personnel (-0.244*), reinforcing the importance of effective contract management.

Various challenges, such as Lack of Top Management Support (6), Lack of Infrastructure (7), High Employee Turnover (8), Lack of Training and Skilled Personnel (9), and Resistance to Change (10), show significant correlations with each other and with Operational Performance. Lack of Top Management Support negatively impacts Electronic Requisition (-0.184*) and

shows a weak negative correlation with Operational Performance (-0.035). Lack of Infrastructure positively correlates with Resistance to Change (0.591**), indicating that infrastructural challenges are often accompanied by resistance to change. High Employee Turnover negatively correlates with Operational Performance (-0.313**), suggesting that high turnover harms performance. Similarly, Lack of Training and Skilled Personnel negatively impacts Operational Performance (-0.325**), demonstrating that a lack of skills and training adversely affects performance. Resistance to Change, while positively correlated with Lack of Infrastructure (0.591**), shows a weak negative correlation with Operational Performance (-0.057), suggesting that resistance to change is linked with infrastructural challenges but has a limited direct impact on performance.

Overall, these results highlight significant positive relationships between e-Procurement practices and operational performance, while various challenges tend to negatively impact performance. These findings underscore the importance of robust e-Procurement practices and the need to address challenges to enhance operational performance.

4.7. Regression Analysis

4.7.1. Model Assumption tests

4.7.1.1. Linearity Assumption

Linearity assumption states that the residuals should be linear relationship with the predicted dependent variables score. Linear relationship between independent variables and dependent variables.

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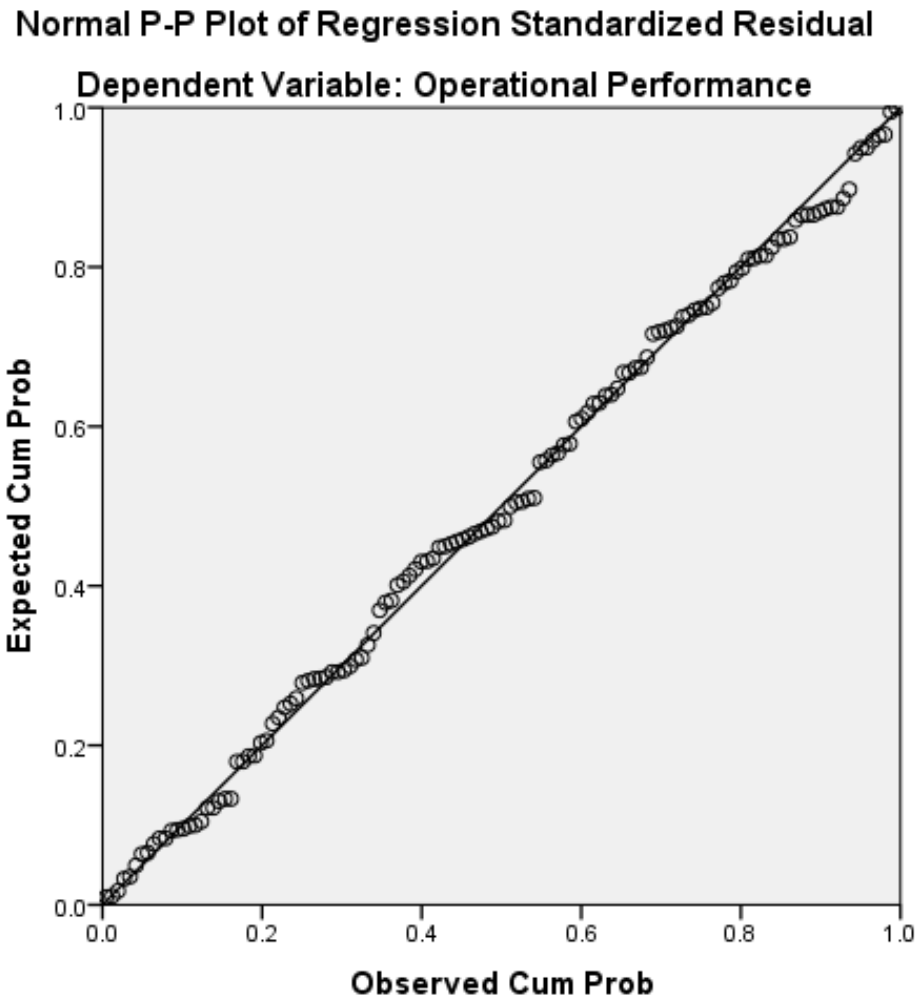
This set of assumption can be examined to a fairly satisfactory extent simply by plotting scatterplots of the relationship between each explanatory variable and the outcome variable. It is important to check that each scatterplot is exhibiting a linear relationship between variables. Alternatively, you can just check the scatterplot of the actual outcome variable against the predicted outcome. The term residual considered is the difference between outliers and influential cases a bit further (J, P. 2010).

The simple outlier influences the line to a far lesser degree but will have a very large residual (distance to the regression line). The influential case outlier dramatically alters the regression line but might be harder to spot as the residual is small - smaller than most of the other more representative points in fact. To examine the scatterplot, you can also use influence statistics (such as the Cook's distance statistic) to identify points that may unduly influence the model (Wang, Rosner & Goodman, 2016)

As it is shown in the figure 4.1, the P-P plot of residuals reveals no large deviation in the spread of the residuals that almost all residuals lay on the linear straight line. Therefore, this indicates that the relationship between the independent variables and the dependent variable is linear.

Figure 4-1 Linear Multiple Regression Assumption



Source: Survey Data, 2024

4.7.1.2. Multicollinearity Test

When the independent variables in a regression model are highly correlated, this condition is known as multicollinearity. Multicollinearity complicates the model's interpretation and can lead to overfitting, where the model performs well on training data but poorly on unseen data. To address this issue, researchers often test assumptions and examine the degree of multicollinearity before deciding which variables to include in the regression model. This process ensures the model's reliability and generalizability by mitigating the negative impacts of multicollinearity (Kutner *et al*., 2004).

Table 4.8 Multicollinearity Statistics

Variance inflation factor

Coefficients[a]

Model		Collinearity Statistics	
		Tolerance	VIF
1	Electronic requisition	.869	1.151
	Electronic procurement Planning	.784	1.276
	Electronic Evaluation	.617	1.621
	Electronic ordering	.546	1.832
	Electronic contract management	.550	1.819
	Lack of Top Management support	.756	1.323
	High Employee Turnover	.923	1.083
	Lack of Infrastructure	.575	1.739
	Lack of Training and Skilled Personnel	.768	1.302
	Resistance to change	.578	1.730

Source: Survey Data, 2024

A VIF value measures how much the variance of a regression coefficient is inflated due to multicollinearity with other predictors. A VIF value greater than 10.0 typically indicates a multicollinearity problem (Hair et al., 1998). In this table, all VIF values are well below 10.0, indicating that multicollinearity is not a significant concern in this regression model. The highest VIF is for Electronic Ordering at 1.832, which is still far below the threshold, suggesting that none of the variables have problematic multicollinearity.

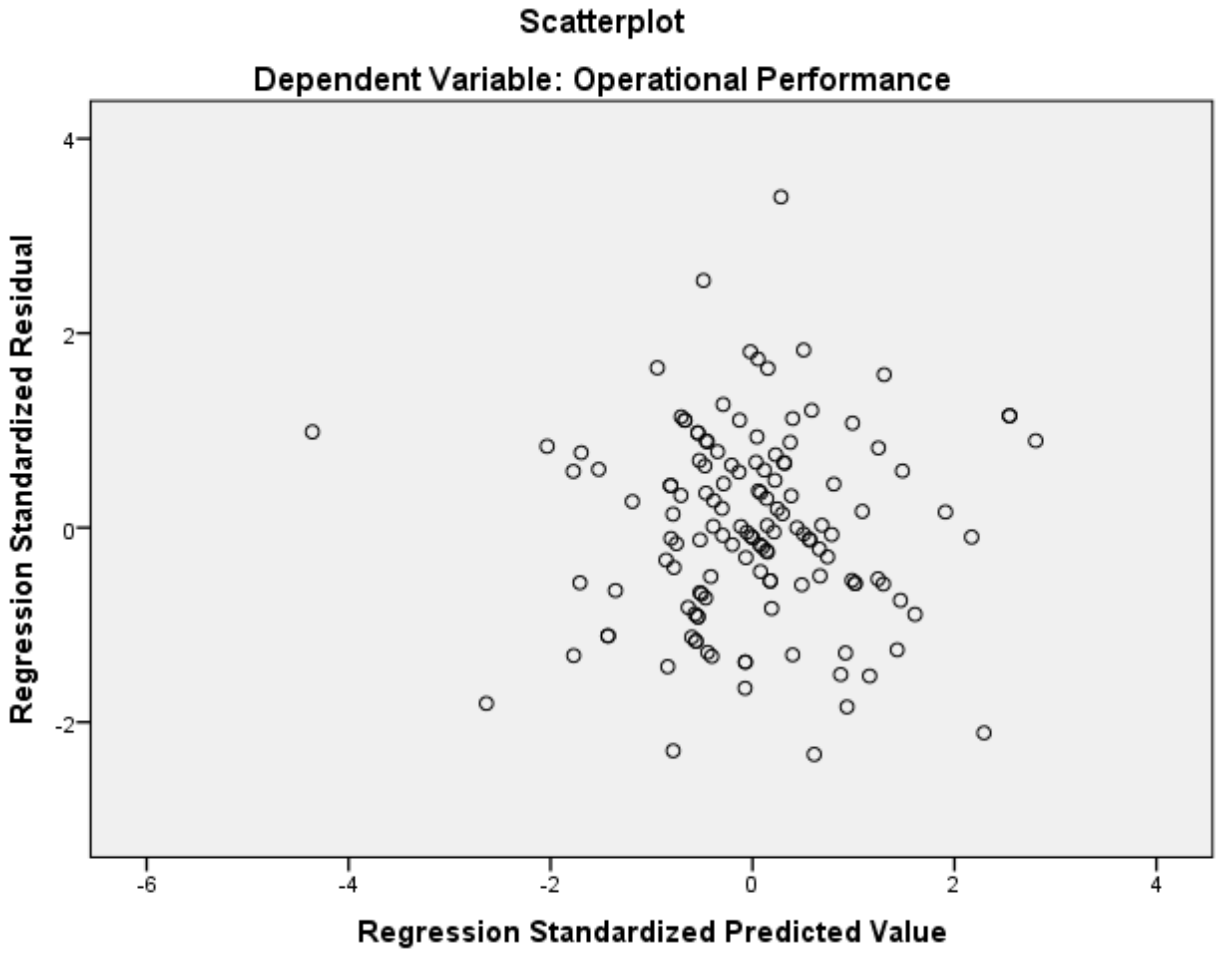
The VIF values in the table 4.8 show that multicollinearity among the independent variables is minimal, as all values are significantly lower than the threshold of 10.0. This indicates that the

independent variables can be included in the regression model without concern for multicollinearity affecting the reliability of the model's estimates.

4.7.1.3. Homoscedasticity

Homoscedasticity assumption elaborates that the variance of the residuals about the predicted dependent variables scores should be the same for all predicted scores. Error variance is assumed to be the same across all values of other variable. (Mat Roni, 2014).

Figure 4-2 Homoscedasticity



Source: Survey Data, 2024

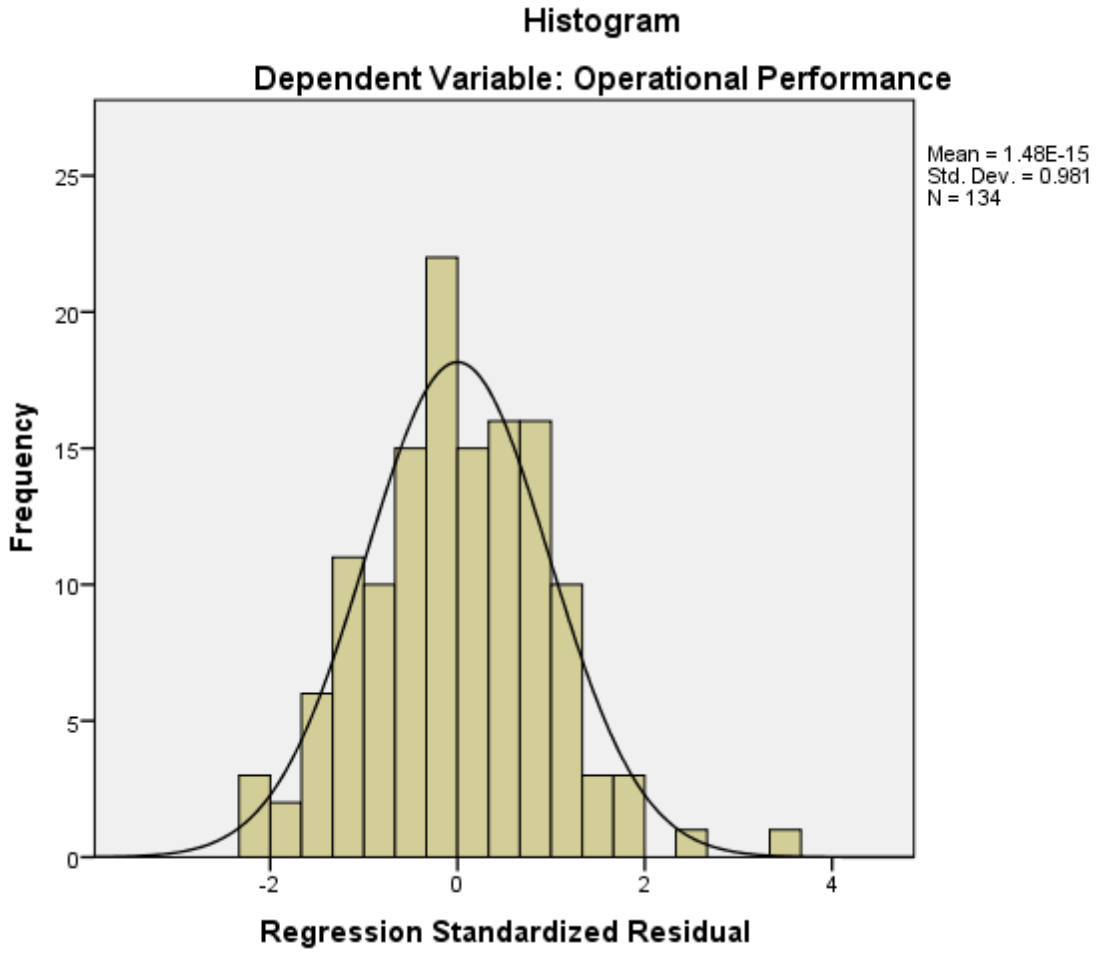
The scatterplot illustrates the regression standardized residuals versus the regression standardized predicted values for the dependent variable, operational performance. The even spread of residuals around the zero line across the entire range of predicted values indicates that the assumption of homoscedasticity is reasonably met. This suggests that the variability in

the residuals is relatively constant, with no apparent pattern of increasing or decreasing spread as the predicted values increase or decrease. Consequently, the model appears to be equally accurate in estimating both lower and higher values, indicating that there is equal variability in the residuals at different levels of the predicted values. Overall, the scatterplot supports the assumption that the residuals have constant variance across the range of predicted values.

4.7.1.4. Normally distributed residuals

A histogram of the residuals (errors) in a model can be used to check that the residuals are normally distributed about the predicted dependent variables scores.

Figure 4-3 Histogram of Standardized Residuals



Source: Survey Data, 2024

One of the classical linear regression model assumptions is that the error term should be normally distributed, or in other words, the expected value of the error terms should be zero

(E(Ut)=0E(U_t) = 0E(Ut)=0). To assess this assumption, the researcher used a histogram to examine the distribution of residuals.

The histogram of the standardized residuals is displayed in Figure 4.1. The result indicates that the standard residuals are somewhat close to the curve. Many of the residuals are fairly close to the curve, and the histogram exhibits a bell-shaped distribution. This implies that the majority of the scores lie around the center of the distribution, with the largest bars on the histogram clustered around the central value.

Therefore, this indicates that the residuals are normally distributed, supporting the assumption of normality for the error terms in the regression model.

4.8. Role of e-procurement practices and challenges on operational performance: A Regression Analysis

Table 4.9 Model Summary on roles of e-procurement practices and challenges on operational performance

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	**.748[a]**	**.560**	**.524**	**.29701**	**1.849**

Source: Survey Data, 2024

a. Predictors: (Constant), Resistance to change, Electronic Procurement Planning, High Employee Turnover, Electronic Requisition, Electronic Evaluation, Lack Of Training And Skilled Personnel, Lack Of Top Management Support, Electronic Contract Management, Lack Of Infrastructure, Electronic Ordering

b. Dependent Variable: Operational Performance

The regression model summary indicates a strong positive correlation between the predictors and the dependent variable, operational performance as shown in Table 4.9, with a multiple correlation coefficient (R) of 0.748. The R^2 value of 0.560 implies that 56% of the variance in operational performance is explained by the independent variables included in the model, indicating a moderate to high explanatory power. The adjusted R^2 value of 0.524 provides a more precise measure, showing that even after adjusting for the number of predictors, the model

accounts for 52.4% of the variance in operational performance. The standard error of the estimate is 0.29701, suggesting a reasonably accurate fit of the model to the data. Furthermore, the Durbin-Watson statistic of 1.849 indicates minimal autocorrelation in the residuals, affirming that the model's assumptions regarding independent errors are likely met. Overall, these statistics suggest that the regression model is reliable and the included predictors are relevant for explaining variations in operational performance.

Table 4.10 ANOVA

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	13.813	10	1.381	15.659	.000[b]
	Residual	10.850	123	.088		
	Total	24.664	133			

Source: Survey Data, 2024

a. Dependent Variable: Operational Performance

b. Predictors: (Constant), Resistance to change, Electronic procurement Planning, High Employee Turnover, Electronic requisition, Electronic Evaluation, Lack of Training and Skilled Personnel, Lack of Top Management support, Electronic contract management, Lack of Infrastructure, Electronic ordering

The ANOVA table 4.10 provided analyzes the impact of several predictors on E-procurement Operational Performance. The regression model, which includes ten predictors (Resistance to change, Electronic procurement Planning, High Employee Turnover, Electronic requisition, Electronic Evaluation, Lack of Training and Skilled Personnel, Lack of Top Management support, Electronic contract management, Lack of Infrastructure, and Electronic ordering), explains a significant portion of the variance in E-procurement Operational Performance, as indicated by the F-value of 15.659 and a significance level (Sig.) of .000. This p-value is less than .05 suggests that the regression model overall significantly predicts E-procurement Operational Performance.

The sum of squares for the regression (13.813) compared to the residual sum of squares (10.850) indicates that the model explains more variance in the dependent variable than what

remains unexplained. Specifically, the mean square for the regression (1.381) compared to the residual mean square (.088) reflects that the variance explained by the predictors is substantially higher than the variance not explained by the model. Overall, the high F-value and significant p-value demonstrate that the combined predictors have a strong and statistically significant effect on E-procurement Operational Performance.

4.8.1. Regression result

Table 4.11 Regression result

Predictor Variable	Unstandardized Coefficient (B)	Standard Error	Standardized Coefficient (Beta)	t-value	Sig.
Constant	2.767	0.336		8.240	.000
ERQ (Electronic requisition) *	0.120	0.036	0.213	3.322	.001
EPP (Electronic procurement Planning)	0.039	0.045	0.059	0.872	.385
EV (Electronic Evaluation) *	0.131	0.033	0.299	3.929	.000
EO (Electronic ordering)	0.039	0.048	0.066	0.814	.417
ECM (Electronic contract management) *	0.159	0.049	0.261	3.238	.002
LTMS (Lack of Top Management support)	0.041	0.043	0.067	0.967	.335
ETO (High Employee Turnover)	-0.078	0.035	-0.138	-2.223	.028
LINF (Lack of Infrastructure)	-0.047	0.038	-0.096	-1.212	.228
LTSP (Lack of Training and Skilled Personnel)	-0.087	0.036	-0.166	-2.439	.016
RC (Resistance to change)	0.018	0.040	0.035	0.445	.657

a. Dependent Variable: Operational Performance

Source: SPSS Output: Own Survey, 2024

Operational Performance = 2.767 + 0.213*(Electronic requisition) + 0.299*(Electronic supplier evaluation) + 0.261*(Electronic contract management) + -0.138 ETO (High Employee Turnover) + -0.166 LTSP (Lack of Training and Skilled Personnel)

The result from Table 4.11 revealed that Electronic requisition practice, with a Beta value of 0.213, had a statistically significant positive effect on operational performance by streamlining the procurement process. Nani and Ali, (2020), note that electronic requisition systems reduce paperwork and processing time, leading to more efficient and accurate procurement operations. Schoenherr and Tummala (2007) report that organizations using electronic requisition systems

benefit from improved transparency and control over procurement activities, which in turn boosts operational performance.

Electronic supplier evaluation, has a Beta value of 0.299, indicating its substantial statistically significant positive impact on operational performance. Boafo and Ahudey (2020) found that Electronic Supplier Evaluation mechanisms facilitate better supplier selection and performance monitoring, which are critical for operational success.

Electronic contract management with a Beta value of 0.261, had a statistically significant positive effect on the operational performance. Highlighting its critical role in operational efficiency. Guo *et al*., (2021) discuss how electronic contract management systems minimize risks, ensure compliance, and improve supplier relationships by providing a centralized and accessible contract repository. Idrees, (2015) found that organizations with robust electronic contract management systems experience fewer contract disputes and better adherence to contract terms, which enhances overall procurement performance.

The lack of training and skilled personnel negatively affects operational performance, with a Beta value of ($B = -0.166$, $p = 0.016$). Boafo and Ahudey (2020) argue that adequate training and skilled personnel are essential for the effective use of E-procurement systems. Without proper training, employees are less likely to utilize these systems efficiently, leading to suboptimal performance. Suzzy Krist Addo (2019) emphasize that investing in employee training improves the adoption and effective use of E-procurement technologies, which directly impacts operational performance.

High employee turnover also has a significant negative impact on operational performance, with a Beta value of ($B = -0.138$, $p = 0.028$). Brandon-Jones and Kauppi (2018) highlight that high turnover rates disrupt organizational workflows and reduce productivity, making it challenging to maintain consistent procurement practices. Masudin et al. (2021), discuss how high turnover leads to loss of institutional knowledge and continuity, which are crucial for maintaining efficient E-procurement operations

CHAPTER FIVE

5. SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1. Summary of Major Findings

5.1.1. Descriptive Analysis of E-procurement Practices of EATI

The electronic requisition process is highly practiced at EATI, with a grand mean value of 4.39. Respondents are very satisfied with the ability to electronically submit purchase requisitions (mean = 4.49), attach relevant documents (mean = 4.37), and track the status of their requests (mean = 4.32).The strong functionality and high user engagement in handling electronic submissions highlight the efficiency of ERQ at EATI.

Electronic procurement planning practices are highly practiced with a grand mean value of 3.38. Respondents find it easy to initiate and submit their annual procurement needs (mean = 4.29), However, the system's ability to consolidate collected needs (mean = 2.90) and support online approval and publication (mean = 2.94) requires improvement. While initiating procurement needs is efficient, consolidation, categorization, and approval processes need enhancement for better use of the system.

The electronic supplier evaluation process is moderately practiced with a grand mean value of 3.12. Bid evaluation (mean = 3.04), evaluation against set criteria (mean = 3.08), and ranking bid results (mean = 3.25) indicate moderate effectiveness. There is potential for further enhancements to improve the effectiveness and user satisfaction of the Electronic supplier evaluation process.

The electronic ordering process has mixed results with a grand mean value of 3.63 indicate that it’s highly practiced. While the ability to send purchase orders electronically is moderate (mean = 2.88), online approval (mean = 3.97) and electronic storage and retrieval (mean = 4.03) are highly rated. Enhancements are needed for sending purchase orders electronically, while online approval and storage functions are robust.

Electronic contract management practices show mixed ratings with a grand mean value of 3.08 which indicate that ECM is moderately practiced. Recording and modifying contracts (mean = 3.02), tracking performance (mean = 3.27), and handling payment settlements (mean = 3.38) are moderately practiced. However, sending alerts (mean = 2.80) and supporting collaboration (mean = 2.96) are less effective. Moderate satisfaction overall, with significant room for improvement in automated alerts and collaboration support.

Overall, EATI utilizes e-procurement practices with a high grand mean value of 3.52. Among these practices, electronic requisition is very highly practiced (mean = 4.39), while electronic ordering remains strong (mean = 3.63). Electronic procurement planning (mean = 3.38), electronic supplier evaluation (mean = 3.12), and electronic contract management (mean = 3.08) see moderate use.

5.1.2. Descriptive statics Analysis of Challenges of E-procurement Practices

Top management commitment and resource allocation is moderately influential with a grand mean value of 3.02. There is a moderate level of commitment (mean = 2.71) and support for training (mean = 3.20) and resource allocation (mean = 3.16). Enhancing top management commitment and resource allocation is necessary.

Manpower Retention Highly challenging with a grand mean value of 3.99. High turnover of key people (mean = 4.29) and difficulty retaining skilled staff (mean = 4.41) are critical issues. Addressing high turnover and retention issues is crucial for improving e-procurement practices.

Infrastructure Issues moderately challenging with a grand mean value of 2.66. Inadequate IT infrastructure (mean = 2.46) and integration difficulties (mean = 2.79) are present but not critical.

Implication: Improving IT infrastructure and system integration is needed for better e-procurement support.

Lack of Training and Skilled Personnel Highly challenging with a grand mean value of 4.11. Inadequate training (mean = 4.69) and ongoing support (mean = 4.34) are significant challenges. Increasing training and support for procurement staff is essential.

Enhancing user interfaces and addressing resistance to change moderately challenging with a grand mean value of 2.94. Employee resistance (mean = 2.81), lack of user-friendly interfaces (mean = 2.90), and limited technical skills (mean = 3.11) are notable issues. Enhancing user interfaces and addressing resistance to change through better training and communication can improve adoption rates.

Challenges are highly influential with a grand mean value of 3.37. Manpower retention and lack of training are the most significant issues, while top management support, infrastructure issues, and resistance to change are moderate challenges.

5.1.3. Regression Analysis of e-procurement practices and challenges on Operational Performance

The regression analysis identifies electronic supplier evaluation (Beta = 0.299), electronic requisition (Beta = 0.213), and electronic contract management (Beta = 0.261) as significant positive factors enhancing operational performance. Conversely, lack of training skilled personnel (Beta = -0.166) and high employee turnover (Beta = -0.138) negatively impact operational performance.

Implementing and improving electronic supplier evaluation, requisition, and contract management practices can significantly enhance operational performance. Addressing training & ongoing support gaps and employee turnover issues is critical for sustained improvement. By focusing on these significant factors and addressing the major challenges identified, the Ethiopian Agricultural Transformation Institute can enhance its e-procurement practices, leading to better operational performance.

5.2. Conclusions

The study aimed to evaluate the electronic procurement management practices, challenges, and their impact on operational performance at the Ethiopian Agricultural Transformation Institute (EATI). The findings revealed that EATI has made notable progress in implementing e-procurement practices, particularly in electronic requisition, electronic procurement planning which showed high user satisfaction and strong functionality. However, other areas such as, evaluation and contract management were moderately practiced, indicating room for improvement. Electronic ordering exhibited mixed results, with moderate ratings in some aspects but high in others.

A number of significant challenges were identified as barriers to the e-procurement implementation at EATI. High employee turnover and difficulty in retaining skilled personnel were critical issues, posing a substantial challenge to sustaining e-procurement practices. Inadequate training and ongoing support for procurement staff, along with a shortage of skilled ICT staff, were also major obstacles. Moderate levels of commitment and resource allocation from top management were areas needing improvement, while inadequate IT infrastructure and integration difficulties with other enterprise systems presented moderate challenges. Additionally, employee resistance to change and limited technical skills were moderate but significant challenges.

The regression analysis demonstrated that certain e-procurement practices are statistically significant and positively impacted EATI's operational performance. Electronic supplier evaluation had the most substantial positive effect, followed by Electronic contract management and electronic requisition. However, challenges such as lack of training & skilled personnel and high employee turnover negatively affected operational performance of the EATI.

While the Ethiopian Agricultural Transformation Institute has highly practiced several e-procurement practices effectively, challenges related to skilled employee turnover and a lack of ongoing training and support remain. To address these issues, targeted improvements in training and retention strategies are crucial. Additionally, strengthening electronic supplier evaluation, requisition, and contract management processes will enhance operational performance and lead to greater efficiency and effectiveness in EATI's procurement practices.

5.3. Recommendations

Based on the findings and conclusions of this study, recommendations are proposed to enhance the electronic procurement management practices and operational performance at the Ethiopian Agricultural Transformation Institute (EATI). It is essential that EATI prioritizes addressing the challenges identified in the study. A comprehensive training program for procurement staff and continuous support could help bridge the gap in skills and knowledge, while an incentive program could help retain skilled personnel. Additionally, EATI should focus on enhancing the moderately practiced e-procurement processes, electronic supplier evaluation and electronic contract management practices. By doing so, EATI can fully leverage the benefits of e-procurement and significantly enhance its operational performance.

5.4. Suggestion for Further Study

This study assessed current e-procurement practices at the Ethiopian Agricultural Transformation Institute (EATI) headquarters, identifying major challenges and evaluating the impact on operational performance in terms of flexibility, transparency, effectiveness, and decision-making. Future research should expand on these findings by exploring additional operational performance aspects and sectors beyond agriculture. Examining different sectors could provide valuable insights into the common challenges and benefits of e-procurement. Additionally, while this study focused on the EATI headquarters in Addis Ababa, future research should include data from EATI's regional offices for a more comprehensive national perspective.

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Appendix I Research Questionnaire

ADDIS ABABA UNIVERSITY
SCHOOL OF COMMERCE

Dear respondent

My name is Gezahegn Atnafu, and I am currently pursuing my master's degree in Logistics and Supply Chain Management at Addis Ababa University, School of Commerce. I am conducting a thesis on ***Electronic procurement management practices, challenges, and its Effect on the operational performance of Ethiopian Agricultural Transformation Institute*** As a requirement in partial fulfillment for the degree of Master of Arts in Logistics and Supply Chain management. This questionnaire is prepared solely for academic purposes and gathers information relevant to your expertise in procurement practices at EATI. Confidentiality is assured, and your responses will be used exclusively for this study.

I kindly request you to spare a few minutes of your time to complete this questionnaire.

Thank you for your time and consideration.

Sincerely,

Gezahegn Atnafu

+251 910 40 2787

abutiatnafu@gmail.com

Section A: Background Information

Definition: In this study, E-procurement management stands for the use of the UNIT 4 Agresso ERP system to handle procurement practices.

1. Gender

Male ☐ Female ☐

2. Age

20-30 years ☐ 31-40 years ☐ 41-50 years ☐ Above 50 years ☐

3. What is your highest level of education?

Below Diploma ☐ Diploma or equivalent ☐ Bachelor's degree ☐ Masters and above ☐

4. How many years have you been working at EATI?

1-5 years ☐ 6-10 years ☐ Above 10 years ☐

5. In Which department or functional area are you working?

Procurement ☐ Information Technology ☐ Logistics & Admin ☐ Human Resources ☐

Finance ☐ Strategic Affairs ☐ Sub- grant ☐

6. What is your position at EATI?

Director ☐ Senior Manager ☐ Manger ☐

Senior Officer ☐ Officer ☐ Assistant ☐

Section B: E-Procurement Practices at EATI

Instructions: Please rate the following statements regarding the E-Procurement Practices by marking the numbers in the column using the 1 to 5 rating scale (Likert Scale)

Use the scale of:

1=Strongly Disagree 2=Disagree 3=Neutral 4=Agree 5=Strongly Agree

No	Statement	1	2	3	4	5
E-Procurement Practice of EATI						
Electronic requisition						
1.	The e-procurement system allows users to electronically submit purchase requisitions.	☐	☐	☐	☐	☐
2.	The e-procurement system allows users to easily attach relevant documents (e.g., specifications, TOR) to purchase requisitions.	☐	☐	☐	☐	☐
3.	Users can easily track the online status and workflow of their submitted purchase requests.	☐	☐	☐	☐	☐
Electronic procurement Planning						
4.	Users can easily initiate and submit their annual procurement needs (e.g., goods or services) through the e-procurement system.	☐	☐	☐	☐	☐
5.	The e-procurement system accurately consolidates and categorizes submitted annual procurement needs.	☐	☐	☐	☐	☐
6.	The e-procurement system supports online approval and publication of the Annual Procurement Plan.	☐	☐	☐	☐	☐
Electronic Supplier Evaluation						
7.	Bid evaluation is conducted entirely electronically within the e-procurement system.	☐	☐	☐	☐	☐
8.	The system electronically evaluates bids against set criteria.	☐	☐	☐	☐	☐
9.	The system is capable of ranking the bid result	☐	☐	☐	☐	☐
Electronic ordering						
10.	The system allows for sending purchase orders electronically to suppliers.	☐	☐	☐	☐	☐
11.	The system facilitates online approval of purchase orders.	☐	☐	☐	☐	☐
12.	Purchase order records are electronically stored within the system and easily retrievable.	☐	☐	☐	☐	☐
Electronic contract management						
13.	The system allows for recording and modifying contracts electronically.	☐	☐	☐	☐	☐
14.	The system allows for tracking and monitoring supplier performance.	☐	☐	☐	☐	☐
15.	The system sends automated alerts before key deadlines, such as contract and performance bond expiration.	☐	☐	☐	☐	☐

16.	The system is capable of handling payment settlement to suppliers, including automatic payment processing, payment scheduling, payment tracking, and compliance with payment terms.	☐	☐	☐	☐	☐
17.	The e-procurement system supports collaboration on procurement projects with suppliers.	☐	☐	☐	☐	☐

Section C: Challenges of E-procurement Practice

Instructions:

Please show your level of disagreement or agreement regarding the Challenges of E-procurement Practice by marking the numbers in the column using the 1 to 5 rating scale (Likert Scale)

Use the scale of:

1=Strongly Disagree 2=Disagree 3=Neutral 4=Agree 5=Strongly Agree

No	Statement	1	2	3	4	5
Challenges of E-procurement						
Lack of Top Management support						
1.	There is Lack of commitment from top leadership toward Decision Making	☐	☐	☐	☐	☐
2.	There is Lack of top management support in organizing trainings on e-procurement	☐	☐	☐	☐	☐
3.	There is Lack of top management support in allocating resources for e-procurement	☐	☐	☐	☐	☐
High Employee Turnover						
4.	There is Turnover of key people with the trust area of e-procurement	☐	☐	☐	☐	☐
5.	There is Employee turnover and difficulty retaining the skilled staff for e-procurement tasks.	☐	☐	☐	☐	☐
6.	Experienced procurement employee frequently changes positions and move to different departments	☐	☐	☐	☐	☐
Lack of Infrastructure						
7.	There is Inadequate IT infrastructure (poor internet connection, Insufficient Hardware, or Software capacity) to support e-procurement	☐	☐	☐	☐	☐
8.	There is Difficulty integrating the e-procurement system with other enterprise (Finance, Inventory management and supplier system) system	☐	☐	☐	☐	☐
9.	Old IT Equipment of the organization are not integrated with a procurement system	☐	☐	☐	☐	☐

Lack of Training and Skilled Personnel						
10.	There is Inadequate Training on e-procurement	☐	☐	☐	☐	☐
11.	There is Inadequate Ongoing Support to procurement staffs	☐	☐	☐	☐	☐
12.	There is a lack of skilled ICT staff to support e-procurement practices	☐	☐	☐	☐	☐
Resistance to change						
13.	There is Employee resistance to change from traditional procurement method to e-procurement	☐	☐	☐	☐	☐
14.	There is Lack of User-Friendly system Interface for e-procurement practices	☐	☐	☐	☐	☐
15.	There is Limited employee technical skill for e-procurement practices	☐	☐	☐	☐	☐

Section D: Impact of E-procurement on Operational Performance

Instructions: Please rate the following statements regarding the Impact of E-procurement on Operational Performance by marking the numbers in the column using the 1 to 5 rating scale (Likert Scale)

Use the scale of:

1=Strongly Disagree 2=Disagree 3=Neutral 4=Agree 5= Strongly Agree

No	Statement	1	2	3	4	5
E-procurement Operational Performance						
Flexibility						
1.	Due to the e-procurement implementation employees can initiate and track procurement requests remotely	☐	☐	☐	☐	☐
2.	The system streamlines approval workflows, leading to faster processing of procurement requests.	☐	☐	☐	☐	☐
3.	The system's flexibility allows for easy accommodation of new changes, such as making contract amendments or changing delivery times.	☐	☐	☐	☐	☐
Transparency						
4.	Monitoring procurement data has been made easier as a result of the e-procurement system	☐	☐	☐	☐	☐
5.	E-procurement implementation has increased transparency in the procurement process.	☐	☐	☐	☐	☐
6.	Publication and approval of procurement plan became easy due to the implementation of e-procurement	☐	☐	☐	☐	☐
Effectiveness						

7.	E-procurement implementation reduces error in procurement transactions.	☐	☐	☐	☐	☐
8.	orders are easily processed as a result e-procurement implementation	☐	☐	☐	☐	☐
9.	e-procurement system eliminates the need for paper documents in the procurement process	☐	☐	☐	☐	☐
Decision-making						
10.	E-procurement implementation has contributed to improved decision-making in the procurement process.	☐	☐	☐	☐	☐
11.	evaluating and ranking bidders became easy due to e-procurement implementation	☐	☐	☐	☐	☐
12.	The system provides access to real-time data for decision-making purposes.	☐	☐	☐	☐	☐

Interview Questions

1. Can you describe your overall experience with the current e-procurement management practices at EATI?
2. What are the major challenges that hinder the implementation of e-procurement at EATI?
3. How has the implementation of e-procurement impacted the overall operational performance of EATI, particularly in terms of flexibility, transparency, effectiveness, and decision-making?