ELECTRONIC PROCUREMENT PRACTICES AND ITS CRITICAL SUCCESS FACTORS: ETHIOPIAN AGRICULTURAL TRANSFORMATION INSTITUTE

BY: YODIT GETACHEW DEMEKE

(ID.No. GSE/6979/15)

A THESIS SUBMITTED TO ADDIS ABABA UNIVERSITY SCHOOL OF COMMERCE FOR THE PARTIAL FULFILLMENT OF THE REQUIREMENT OF THE DEGREE OF MASTER OF ARTS IN LOGISTICS AND SUPPLY CHAIN MANAGEMENT

Advisor: Shiferaw Mitiku (Ph.D.)

October 2025

Addis Ababa, Ethiopia

Declaration

I, YODIT GETACHEW DEMEKE, declare that this thesis, titled "ELECTRONIC PROCUREMENT PRACTICES AND ITS CRITICAL SUCCESS FACTORS: ETHIOPIAN AGRICULTURAL TRANSFORMATION INSTITUTE", has been carried out by me for the partial fulfillment of the requirement for the degree of Master of Arts in Logistics and Supply Chain Management from Addis Ababa University, College of Business and Economics. This thesis is an original work and has not been presented for the award of any degree or diploma in any other university or organization.

YODIT GETACHEW DEMEKE (ID.No. GSE/6979/15)

Signature: _____

Date: _____

ADDIS ABABA UNIVERSITY

SCHOOL OF COMMERCE

GRADUATE STUDIES

ELECTRONIC PROCUREMENT PRACTICES AND ITS CRITICAL SUCCESS FACTORS: ETHIOPIAN AGRICULTURAL TRANSFORMATION INSTITUTE

BY YODIT GETACHEW DEMEKE

APPROVED BY BOARD OF EXAMINERS

ADVISOR	SIGNATURE	DATE
Shiferaw Mitiku (Ph.D.)	_____	_____
INTERNAL EXAMINER	SIGNATURE	DATE
Zelalem Bayisa (Ph.D.)	_____	_____
EXTERNAL EXAMINER	SIGNATURE	DATE
_____	_____	_____

Certification

This is to certify that the thesis titled “ELECTRONIC PROCUREMENT PRACTICES AND ITS CRITICAL SUCCESS FACTORS: ETHIOPIAN AGRICULTURAL TRANSFORMATION INSTITUTE” has been carried out by YODIT GETACHEW under my guidance and supervision. In accordance with this, I assure that this work, which is submitted to Addis Ababa University, College of Business and Economics, in partial fulfillment of the requirements for the award of the degree of Master of Art in Logistics and Supply Chain Management, is an authentic work of the required standard.

Advisor: Shiferaw Mitiku (Ph.D.)

Signature: _____

Date: _____

Acknowledgement

In First Place, I would like to extend my deepest gratitude to my lord Jesus Christ SON of VIRGIN MARY for the guidance and strength to pass my hard lifetimes and Academic journey.

Secondly, I would like to extend my deep gratitude to my advisor Dr. Shiferaw Mitiku Tebeka for his resilient support, his continuous follow-up, insightful and fast feedback, and encouragement which helped me in the successful completion of this research.

Additionally, I would like to give precious thanks to all Ethiopian Agricultural Transformation Institute (EATI) Staffs for all their support, kindness and willingness providing all information and data I have requested.

Last but not least, I extend my genuine gratitude to my family and friends for all the support, understanding and encouragement throughout my journey.

Table of contents

List of tables

List of figures

Abbreviations and acronyms

ATA	Agricultural Transformation Agency
ATI	Agricultural Transformation Institute
B2B	Business to Business
CSF	Critical success factors
EATI	Ethiopian Agricultural Transformation Institute
ECM	Electronic Contract Management
EDI	Electronic Data Interchange
ERP	Enterprise Resource Planning
E-Procurement	Electronic Procurement
E-tendering	Electronic Tendering
GDP	Gross Domestic Product
ICT	Information Communication Technology
IT	Information Technology
RFI	Request for Information (RFI)
RFP	Request for Proposal (RFP)
RFQ	Request for Quotation (RFQ)
SPSS	Statistical Packages for the Social Sciences
UNDESA	United Nations Department of Economic and Social Affairs

Abstract

Electronic procurement (e-procurement) has fundamentally transformed traditional procurement practices by significantly enhancing operational efficiency, reducing transaction costs, and fostering greater transparency and accountability. With this regard, this paper critically examined the e-procurement practices at Ethiopian Agricultural Transformation Institute (EATI), by assessing the e-procurement management practice of EATI, to determining the major critical success factors for E-procurement EATI, and to assessing the relationship between them. For this purpose, the study utilized a mixed-method approach consisting of both quantitative and qualitative approaches, while utilizing an explanatory and descriptive research design. In addition, both primary and secondary data were collected, where 155 questionnaires were distributed to the participants of the study, selected through simple random sampling and 149 were returned. Furthermore, interviews were conducted with 6 directors of the organization. The quantitative data was analyzed and presented using descriptive statistics, with means and standard deviations, and using inferential statistics, specifically multiple linear regression analysis. With this regard, the results of the study showed that the five variables representing E-procurement critical success factors, namely, top management support, staff training, system integration, high information quality, performance measurement, all had a positive and significant effect on E-procurement practices. Based on these results, the study recommended an active role by top management in leading the e-procurement practices, investments in technology infrastructure and system integration, and provision of continuous training and on-the-job follow-up, among other recommendations.

Keywords: E-Procurement Practices, Critical Success Factors, EATI

CHAPTER ONE

INTRODUCTION

Electronic procurement (e-procurement), which implies the automation of an organization's procurement of goods and services through web-based applications, has been noted for its potential to rationalize organizational expenditure, reduce administrative costs, and stimulate efficiency in operations (Gardenal,2013).

Electronic procurement (e-procurement) has fundamentally transformed traditional procurement methodologies by significantly enhancing operational efficiency, reducing transaction costs, and fostering greater transparency and accountability. Ethiopian Agricultural Transformation Institute (EATI) has recognized the strategic importance of e-procurement in advancing institutional objectives and driving the broader agenda of agricultural transformation. This paper critically examines the e-procurement practices at EATI and identifies the critical success factors that determine its efficacy and sustainability.

1.1 Background of the study

Procurement is the execution of acquiring, goods, services or works from an external source, often through tendering or competitive bid process (Laffont and Tirol, 1993). It encompasses tasks such as supplier selection, contract management, and negotiation. Effective procurement practices can give in copious benefits, including cost savings, improved quality and delivery, enhanced supplier relationships, and increased innovation. Subsequently, the ability to optimize procurement processes and strategies has become a focal point for organizations seeking to maximize their overall performance (Cao and Wang, 2022; Mohamud et al., 2023).

As usual established (traditionally), firms make use of paper-based systems to procure materials and services by searching from paper-based catalogue provided by suppliers through telephone, and fax. The traditional material procurement process involves generation, copying and transfer of many paper documents (Li, Cao, J.N., Daniel, C., & Miroslaw, S. 2002.

As mentioned by Nelson et.al. (2001), the lion's share of organizational spending consists of purchasing. In order to minimize the total costs spent on purchasing process, internet

technologies are used, and e-Procurement has become popular to implement in the latest era by both governments and enterprises.

Private and public sector organizations have been utilizing Information Technology (IT) systems to streamline and automate their purchasing and other processes over the past years. Electronic Data Interchange has been providing automated purchasing transactions between buyers and their suppliers since it was launched in the 1960s. Enterprise Resource Planning (ERP) followed in the 1970s and then came the commercial use of the Internet in 1980s. It was only in the 1990s that the World Wide Web, the multimedia capability of the Internet - became widely enabled and provided the essential resource for the automation of procurement (OGC, 2002).

As stated by Chopra, et al., (2001), e-Procurement is business-to-business purchasing practice that utilized electronic commerce to identify potential sources of supply, to purchase goods and service, to transfer payment and to interact with suppliers. E-procurement and traditional procurement are the two methods used to acquire products. Procurement operations such as ordering, buying, negotiating, and looking for raw resources in the procurement procedure may all be performed via an integrated communication system (web-based) (Croom & Brandon-Jones, 2007).

E-procurement pop up as an internet-based technology that revolutionized the purchasing process of an organization by bringing automation into a labor-intensive atmosphere to eliminate the problems faced in traditional procurement processes. E-procurement is an electronic platform where procurement activities are managed between different parties involving electronic communication mediums like the Internet, email, phone, and fax. According to (Davila, 2003), E-procurement technology supports the acquisition of goods over the Internet through engaging E-procurement software, business-to-business market exchanges, and purchasing consortia.

Furthermore, as per Vaidya et al. (2004), E-procurement is an instrument that equips procurement activities such as sourcing, receipting, commissioning, ordering, and making payment electronically. Transparency, efficiency, and fairness are the possible benefits of using e-procurement. As Teo, Lin, and Lai (2009), e-procurement has two advantages. It is possible to raise the operational efficiency and effectiveness, data correctness, and usefulness of the application process, via direct advantages.

The Enterprise Resource Planning (ERP) system is an enterprise information system designed to integrate and optimize the business processes and transactions in a corporation. ERP systems have become crucial strategic tools in today's competitive business environment. This provides the benefits of real-time capabilities and seamless communication for business in large organizations. Nevertheless, not all ERP implementations have been successful. Since ERP implementation affects the entire organization's process, people, and culture, there are several challenges that companies encounter while implementing ERP systems (Smeds, 2010).

From a stand of procurement, every possible instance of time minimization is important for the procurement process to run as smoothly as possible. Using ERP systems and other electronic software to accelerate communication results in both time usage reduction but also less cost devoted to the transaction itself which leaves more resources to spend on managing the suppliers (Lambert & Cooper, 2000).

Organizations not only consider it inevitable to have an ERP system in place but also put great importance into the question regarding how to effectively establish one (Yu, 2005). To remain competitive, organizations have to be able to respond to the markets' fast-changing environments quickly. (Shallat & Udin, 2012) mentioned that Stakeholders involved in the procurement process and the entire organization in particular need to realize and understand these crucial and very important changes, which they conducted in a new and different manner from those previously performed in their legacy systems.

1.2 Background of the organization

Ethiopia is known for its varied natural environments, which include lush fertile farmland, parched desert regions, waterfalls, and volcanic hot springs. In Ethiopia, agriculture is the main source of income. It employs more than 80% of the workforce and makes up about 46% of the country's GDP (ATI, 2022; 2023).

Formerly known as the Agricultural Transformation Agency (ATA), the Ethiopian Agricultural Transformation Institute (ATI) is a government organization focused on strategy and delivery, which was established to accelerate the growth and transformation of Ethiopia's agriculture

sector, which plays a significant role in the nation's GDP, exports, and labor force (ATI, 2022; 2023).

The primary goal of the ATI's work is to enhance the standard of living for smallholder farmers nationwide in order to increase their income, resilience, inclusivity, and sustainability. By conducting policy and analytical studies, offering technical implementation support and capacity building, organizing platforms to better integrate partners and projects, and creating and directly leading a number of innovative/pilot interventions, the ATI seeks to transform Ethiopia's agriculture sector. (ATI, 2022; 2024)

According to Feven (2019), ATI adopted an ERP system in the middle of 2015 in order to optimize internal procedures and boost operational efficiency. Financial management, procurement management, inventory management, supply chain management, customer relationship management (CRM), human resources management (HRM), business intelligence, and several interfaces for clients, vendors, and staff are just a few of the functional areas that are included in this ERP module. As a result, the E-procurement system at the heart of our study is a component of their Enterprise Resource Planning (ERP) system as a whole.

1.3 Statement of the problem

E-procurement has improved efficiency, transparency, and cost reductions in global purchasing and supply chains. Especially in industrialized economies, governments and corporations use e-procurement systems to automate the whole procurement process, from identifying items which need to be procured to obtaining these items with all their necessary documents (Monczka et al. 2016).

Countries such as South Korea and Singapore have integrated procurement modules into their e-government ecosystems, allowing for real-time integration with financial accounting and inventory systems. Global experiences show that successful e-procurement deployment requires reliable technology, high-quality data, skilled users, and strong leadership commitment (Thai 2007).

In Sub-Saharan Africa, e-procurement adoption is uneven, with many governments remaining in trial phases or using underdeveloped digital systems. Some of the problems that seem to occur

include technological difficulties, poor digital literacy among procurement personnel, and insufficient internet and technology infrastructure. With this regard, despite worldwide evidence that e-procurement may improve transparency, cut costs, and increase accountability, many African countries are still in the early stages of expanding digital procurement systems use (African Development Bank, 2019).

Despite official policy directives to modernize procurement through digital channels in Ethiopia, implementation is hampered by a number of technical, capacity, and cultural issues. The federal government has supported e-government efforts since the mid-2010s, although e-procurement adaptation has progressed slower than health, education, or tax digital systems. Concerning this, required internet access is unequal around the country, with better networks serving Addis Abeba and a few regional centers, while many rural zones and woredas rely on unstable internet connections (UNDESA, 2022).

Meanwhile, reoccurring knowledge gaps, along with limited training options and employees' lack of the skills required to utilize the system effectively, impede the successful adoption of E-procurement systems. In addition, cultural resistance to e-procurement can lead to parallel paper-based processes that undermine transparency and accountability. As a whole, these problems have hampered Ethiopia's capacity to emulate the successes seen in other countries, which leaves a gap in efficiency and accountability (UNDESA, 2022; Ministry of Innovation and Technology, Ethiopia, 2019).

With this regard, a study by Feven (2019) centered on the overall implementation of enterprise resource planning (ERP) systems and their influence on organizational performance, included procurement systems and tried to show its effect on organizational performance, while it did not explore major challenges in detail and success factors of e-procurement practices. Another study by Atnafu (2024) focused on electronic procurement management practices, challenges, and its Effect on the operational performance on Ethiopian Agricultural Transformation Institute unveiled several compelling insights. The study also highlighted considerable challenges that threaten to impede progress. However, the study did not reveal the gap regarding critical success factors essential for effective e-procurement implementation and practice. Understanding these

critical success factors is vital for organizations aiming to maximize the benefits of their e-procurement systems.

Despite the growing implementation of e-procurement systems in Ethiopia, there remains a lack of sufficient empirical research that deeply examines the specific relationships between critical success factors and their effects on e-procurement practices. Existing studies have primarily focused on identifying general challenges and determinants of adoption; however, limited empirical evidence explores how these several success factors interact to influence the effectiveness and sustainability of e-procurement implementation, particularly within the Ethiopian context or at the Agricultural Transformation Institute (ATI).

In addition, The Ethiopian Agricultural Transformation Institute has yet to fully realize the operational and strategic benefits of electronic procurement. Here, procurement is implemented in the organization as a part of the ERP system that has been installed in the organization, leveraging the capabilities of ERP to coordinate various purchasing activities. With this regard, while several e-procurement components have been introduced as a part of the ERP system in place at the organization, the process is hindered by systemic challenges, including high employee turnover and difficulty in retaining skilled personnel were critical issues, posing a substantial challenge to sustaining e-procurement practices.

As a result, procurement inefficiencies persist, undermining ATI's ability to effectively support agricultural development goals and contribute to national transformation strategies. Here, as the Ethiopian Agricultural Transformation Institute (ATI) manages annual procurements worth millions of birrs for many donor-funded programs, it requires strict e-procurement system that ensures compliance with legal processes and ensures accountability and transparency. Hence, to ensure the system is successful in the organization, decision-makers need a clear awareness of how particular organizational challenges and crucial success factors impact e-procurement practice.

Therefore, this study aims to fill both conceptual and empirical gaps by assessing current e-procurement practices of the Ethiopian agricultural transformation institute and identifying the critical success factors of the e-procurement practices and analyzing the effects of these E-procurement critical success factors on the e-procurement practice of the organization itself.

With this regard, the study delivers valuable insights to ATI through identification of the unique contributions of each challenge and success factor, where the results produce insights into ATI's procurement related environment, which helps the top management to determine which challenges demand urgent attention and which success factors merit being looked-into for long-term progress.

1.4 Research questions

To guide this study effectively and yield meaningful results that would enable the researcher to formulate practical recommendations, the following research questions have been developed:

1. What are the current practices of electronic procurement at EATI?
2. What are the critical success factors of electronic procurement practices at EATI?
3. What are the effects of critical success factors of e-procurement practices on e-procurement practices at EATI?

1.5 Objectives of the study

1.5.1 General objective

The general objective of this study was to examine the current practices of electronic procurement and analyze the effects of critical success factors on the effectiveness of e-procurement implementation at the Ethiopian Agricultural Transformation Institute (EATI).

1.5.2 Specific objectives

The following objectives served as the focus of this study:

- To assess the e-procurement practices at EATI
- To determine the critical success factors of e-procurement practices at EATI
- To assess the relationship between critical success factors of e-procurement practices and the e-procurement practices at EATI

1.6 Significance of the study

The significance of this study extends across several key areas, offering tangible benefits. Firstly, it emphasizes procurement practice improvements by identifying challenges and critical success factors that enhance efficiency, cost saving and transparency in procurement processes. This, Turn, supports EATI in refining its e-procurement practices and ensuring the successful implementation and practice of ERP system. Moreover, the study addresses empirical gaps in understanding the current e-procurement success factor in EATI. It examines critical success factors such as system integration, staff training, performance measurement, and information quality helping to identify and overcome existing barriers to implementation.

On a practical level, the findings provide valuable insights aimed at strengthening the e-procurement practices of the Ethiopian Agricultural Transformation Institute (EATI). These insights not only highlight areas for improvement but also empower policymakers to develop targeted strategies that address specific challenges in e-procurement.

By identifying best practices and critical success factors, this research seeks to create a comprehensive framework that can effectively guide EATI and other public institutions especially Ethiopia's agricultural sector enhancing their procurement processes.

Ultimately, the goal is to facilitate the advancement of e-procurement practices within EATI, contributing to greater efficiency, transparency, and accountability in resource management and service delivery.

1.7 Scope of the study

1.7.1 Geographic scope

This study will focus specifically on the Ethiopian Agricultural Transformation Institute (EATI) Head Office. The primary aim is to thoroughly investigate the electronic procurement practices in EATI, examining the challenges faced and identifying critical success factors for effective implementation.

1.7.2 Empirical scope

When it comes to empirical scope, this study was delimited to providing a comprehensive analysis and presentation of key themes related to electronic procurement (e-procurement) practices, and the critical success factors of e-procurement. With this regard, the study aimed to assess critical success factors of e-procurement on the e-procurement practices of Ethiopian Agricultural Transformation Institute.

Here, to make things clear, for this study, electronic procurement means the use of ERP systems used in the Ethiopian Agricultural Transformation Institute that encompasses e-procurement and is used to facilitate and practice the procurement process.

By utilizing ERP, e-procurement enhances the management of procurement tasks, focusing on its practices explicitly within the contexts of electronic requisition, electronic procurement planning, electronic ordering, Electronic Supplier Evaluation, and electronic contract management, associated challenges, and the critical success factors that contribute to its effectiveness. By adopting a targeted approach, the study aims to provide an insightful investigation into e-procurement practices within EATI's specific organizational context. This examination will help identify existing gaps, inefficiencies, and success factors for optimization. Ultimately, the research seeks to enhance EATI's operational efficiency by streamlining procurement processes, improving transparency, reducing costs, and leveraging technology to foster a more effective and sustainable procurement system.

1.7.3 Methodological scope

When it comes to the methodological scope of the study, it is delimited to application of a mixed research method, consisting of both quantitative and qualitative research methods. In addition, both primary and secondary data were collected for the purposes of this study, while both descriptive and inferential statistical analysis were conducted to describe and present the data collected through questionnaires and interviews.

1.8 Limitations of the study

The research would have had greater generalizability if the information had been gathered from all branches of EATI. Even though there are several constraining factors that limited the study's scope. Subsequently, the researcher recommends that fellow researchers in the field to 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 insightful results on the electronic procurement management practices, challenges, and critical success the Ethiopian Agricultural Transformation Institute.

1.9 Organization of the paper

The paper is organized as follows: Chapter one presents the introduction, problem statement, objectives, research questions, and scope of the study. The second chapter covers the literature review, which includes theoretical literature, empirical studies, and the conceptual framework. The third chapter discusses the study’s methodology, detailing the study area, research design, data sources and collection methods, sampling techniques, sample size determination, data analysis methods, reliability and validity analysis, and ethical considerations. The fourth chapter covers the results of the study and its discussion and interpretation. The fifth chapter will provide the summary of findings, conclusions and recommendations.

CHAPTER TWO

RELATED LITERATURE REVIEW

The chapter centers the researcher's literature review, which includes the analysis of studies conducted by other researchers regarding e-procurement practices, the challenges associated with e-procurement practices, and the critical success factors. Additionally, the chapter identifies research gaps, provides a summary of the literature review, and presents a comprehensive conceptual framework.

2.1 Theoretical literature review

Procurement is the process of acquiring, buying goods, services or works from an external source, often via a tendering or bid process (Laffont, Jean-Jacques; Tirole, Jean, 1993). It comprises of all the activities required for obtaining items from a supplier to the warehouse. Traditionally, firms practice paper based system to procure materials and services by searching from paper based catalogue provided by suppliers through telephone and fax. The traditional material procurement procedure involves generation, copying and transfer of many paper documents (Heng Li, Cao, J.N., Daniel, C., & Miroslaw, S. 2002).

2.1.1 Electronic procurement practices

The expansion of e-business in the late 1990's led to the enhancement of new opportunities related to procurement: e-procurement, spend management, outsourcing and joint product design (Lancioni, Smith, and Oliva, 2000). The emergence of the Internet as a business systems platform has been a catalyst for significant changes in the operation and status of organizational procurement. Information Technologies have changed the way organizations and governments operate. As noted by Nelson et.al. (2001), the most of organizational spending consists of purchasing. In order to minimize the total costs spent on purchasing process, internet technologies are used and e-Procurement has become preferred to implement in the latest era by both governments and enterprises.

As notion by Chopra, et al., (2001), e-Procurement is a business-to-business purchasing practice that utilizes electronic commerce (e-commerce) to distinguish possible sources of supply,

purchase goods, and services, transfer payment and interact with suppliers. Moon, (2005) described E-procurement as in- depth procedure 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).

Martie (2023) stated that 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. As considered by Quinnox (2012), e-procurement is a comprehensive phenomenon that provides for making strategic initiatives that can be used in reorganizing the entire purchasing process. A properly implemented e-procurement system can connect companies and their business processes directly with suppliers while managing all interactions.

E-Procurement indicates that the use of Internet-based (integrated) information and communication technologies (ICTs) to perform individual or all stages of the procurement process including search, sourcing, negotiation, ordering, receipt, and post-purchase review (Croom& Brandon-Jones, 2004). While there are discrete forms of e-Procurement that concentrate on one or many stages of the procurement process such as e-Tendering, e Marketplace, e-Auction/Reverse Auction, and e-Catalogue/Purchasing, e-Procurement can be viewed more broadly as an end-to-end solution that integrates and streamlines many procurement processes throughout the organization.

Gardenal, 2013 described Electronic procurement (e-procurement) is the automation of an organization’s procurement of goods and services through web based applications, has been mentioned for its potentials to rationalize organizational expenditure, minimize administrative

costs, and stimulate efficiency in operations. Typically, procurement is one of the crucial areas in organizational cost structure.

E-procurement embraces the use of intranet, extranet, and internet applications in the purchase procedure apart from traditional methods such as ordering over the phone. Additionally, e-procurement covers the authorization of the entire process with the overarching goal of cost minimization and encloses the online acquisition of goods and services for a business's routine operations. A well-executed e-procurement strategy not only enhances online shopping but also establishes a direct line of communication between businesses and their suppliers, handling all correspondence between the two parties (Saastamoinen et al., 2016).

The technique of manual procurement is changed into an electronic, web-based procedure through e-procurement. The ability for suppliers to display their goods online helps them as well. Through the e-procurement system, suppliers may accept, handle, and process purchase orders from government bodies and private sectors. As a result of the full procurement cycle being automated within an e-procurement framework, suppliers stand to gain a great deal from being able to reach a larger pool of buyers, as well as from lower operating costs, faster turnaround times, more revenue, and happier customers. In addition to boosting competitiveness, a more open and IT-based electronic procurement system may be crucial in reducing these kinds of political interference. First, more bidders may be able to engage in the bidding process with the use of an electronic procurement system. Due to the cheap cost of participation, winning bids from bidders outside the purchasing district can also be accepted, increasing competition and driving down prices. By allowing a bidder to submit an online bid from the comfort of their office or a remote location rather than having to visit the procuring entity's office in person, additionally, this will lower prices and increase competition (Nawi et al., 2017; Vaidya et al., 2006).

Internet-enabled procurement system allows firms to automate its transaction-processing activities such as sending purchase orders, receiving orders and paying suppliers. Therefore, firms gain vast time and cost savings for corporate purchasing of low cost, high-volume goods for maintenance, repair and operations activities. Additionally, reducing administrative and purchasing costs, Internet-based corporate purchasing can also save time through process

streamlining. In addition, it can improve order-tracking accuracy; better enforce purchasing policies; provide better customer and supplier service; reduce inventories; and give more power in negotiating exclusive or volume-discount contracts.

Electronic procurement (e-procurement) or supplier exchange is the procedure of requisitioning, ordering and purchasing goods and services online. It is a business-to-business process. Utilizes a supplier's closed system and is only available to registered users. E-procurement accelerates interactions between preferred suppliers and customers through bids, purchase orders and invoices, (Rahul, 2023).

ERP is internal web-based system that is designed exclusively for controlling and material planning. E-planning is the gathering and distribution of data for both internal and external users, tracking the progress of goods, accepting goods that meet the specifications and payment of goods using internet based program. Documentation is core to the planning role and they have to meet standards in terms of confidentiality, authenticity and for future reference. Lately, companies are using electronic documents such as e-mails, use of website and technical device for e-documentation. The e-tools such as intranet, optical scanners, e-forms submission are used to enhance efficiency in their service delivery and achieve their goals (Gil-García and Martinez-Moyano, 2007; Irani, 2007). New technology has given rise to new ways of conducting business and enhances operational performance. The use of technology has led to improve performance, efficiency and improved service (Contini and Lanzara, 2009).

As defined by Croom, S. & Brandon, J. A., (2004) E-Procurement is using internet-based integrated information and communication technologies to hold out individual or all stages of the procurement method together with negotiation, search, sourcing, receipt, ordering, and post-purchase review. E-procurement connects a vast network of businesses that helps business people search for necessary information and conveniently contact people.

In this study, an effort was made to elucidate electronic procurement practices by synthesizing understanding from a divergent range of literature sources. This approach provides insightful understanding of e-procurement practices.

2.1.1.1 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)

2.1.1.2 E- Sourcing

It is a Procedure that finds new suppliers for a specific purchasing category which can be accomplished by utilizing the Internet technology as usual the internet itself. A purchase carried out by identifying new suppliers enhances the competitiveness during the process of tendering in the case of this procurement category. Furthermore, the supply risk associated with this category can be minimized through E-sourcing (Kraljic, 1983).

E- Sourcing has become a main procurement tool, letting companies connect, and screen and shortlist suppliers, irrespective of whether they are present at the same location or at the same time often letting category managers secure better outcomes than from traditional negotiations. As it noted by Chartered Institute of Procurement and Supply (CIPS), The reason why e-sourcing has become so popular is that, as in many other areas of online activity, the Internet brings suppliers and provider closer together, accelerating minimized costs, better communication and a more efficient process. Traditional geographical limitations are no longer an issue in e-sourcing since sending and receiving E-mail and other information from the World Wide Web is fast and efficient. With e-sourcing, organizations are able to maximize the sources of their potential suppliers at no cost as they do not only depend on those vendors and suppliers, but they can also physically visit their premises since they interact online, and they are able to get whatever information that they require with the pressing of a button of their computers. In the comfort of their offices, they can source for their inputs from any part of the world. They communicate via the internet and partner with suppliers and buyers online, and this enhances their operations (Dinda, 2010).

2.1.1.3 E- Tendering

It is the process of sending request for information (RFI) and request for proposal (RFP) to suppliers and obtaining the suppliers' response, through Internet technology. E- Tendering is sometimes also supporting the analysis and comparison of responses. Nevertheless, the point should be mentioned that E-tendering is not used to close the deal with a supplier. It is the process of conducting the full procurement cycle on the internet including submission of price bids in a way that ensures effectiveness, economy and speed of internet is well harnessed. This leads to better tracking of order placed, as it is easy to keep track of orders and also make correction in case of any errors for the previous orders placed. Currently organizations are practicing E-tendering as one of the mechanisms to minimize costs. Through E-tendering the organization generates wealth through electronics business (Amit and Zott, 2001).

The use of E-tendering in the purchasing process has nine several advantages. The screening and selection of qualified suppliers is automated reducing the lead-time, price, improving flexibility, quality are among others (Okubo Kevin Namatsi., 2014).

2.1.1.4 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.

2.1.1.5 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.

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

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.

2.1.1.7 ERP definition

Enterprise Resource Planning (ERP) systems have emerged as integral components of modern business operations, providing organizations with comprehensive tools to streamline and integrate various business processes (AlMuhayfith & Shaiti, 2020, Chofreh, et. al., 2020, Katuu, 2021). Defined as sophisticated software applications that facilitate the management of core business functions, ERP systems have witnessed a steady evolution, catalyzed by technological advancements and the ever-changing landscape of global business. This critical review delves into the nuanced realm of ERP systems implementation, focusing specifically on the trends, challenges, and future directions (Antwiadjei, 2021, Peltomäki, 2019, Wright, 2023).

Enterprise Resource Planning (ERP) systems refer to integrated software solutions designed to automate and manage an organization's key business processes. These processes may include finance, human resources, supply chain, manufacturing, and more. ERP systems consolidate data from various departments into a unified platform, providing real-time insights and enhancing decision-making capabilities. The significance of ERP systems lies in their ability to foster efficiency, collaboration, and agility within organizations (Abdulraheem, Abdulla & Mohammed, 2020, Ivanović & Marić, 2021).

2.1.2 Challenges of electronic procurement

Gunasekaran and Ngai (2008) conducted empirical research which indicated that, there are several factors that are critical to the success for any e-procurement initiative including the public sector, which need to be addressed for successful implementation of e-procurement in an organization, the users acceptance of new systems of information, the quality of information that would be obtained, trust in the new systems, perceived risks, skills that staffs have and the training they would require, support from the top management at the organization, benefits that would be obtained from implementing the new system and continuous assessment of the

benefits, benchmarking and compliance to best practices and factual selection of e-procurement solution-procurement is often hindered by a variety of challenges, as identified by scholars and practitioners.

With this regard, one of the major challenges encountered in electronic procurement practices is lack of employee competency. Here, procurement staff must be expert to use the applications of software that offers the organization management skills to manage their activities for example, distribution chain and value addition in a company (Beth et al. 2003). This technology is based on databases, which are smoothly reached on real time foundations. ERP systems perfectly provide the procurement management and management itself with the opportunity to produce steadfast, consistent, and timely information necessary for attainment of organizational goals.

Andraski and Novack (1996) stated that people are "the most important element of the logistics marketing concept." Daugherty (2000) mentioned that to take supply chain performance to the next level, companies will have to tap into this human element more intensively. Many companies have pushed hard on technological and infrastructure improvements and investments. The next wave of improvements and investment should center on the people who manage and operate the supply chain."

In 2003, a review in Harvard Business indicated that `despite years of process breakthroughs and elegant technology solutions, an agile, adaptive supply chain remains an elusive goal. Maybe it's the people who are getting in the way' (Beth et al. 2003). It is commonly believed that instead of considering the supply chain to be a 50/50 mix of infrastructure and information systems technology, rather any supply chain is more like 45/45/10 mix of human behavior, systems technology and asset infrastructure (Gattorna, 2006).

Banda (2009) and Barsemoi et al., (2014) mentioned many procurement entities do not have skilled human resource critical to manage procurement processes. The lack of the right (skilled) of employees to bring about enforcement of Quality standards, monitor e-procurement processes, determination of specifications, defining requirements, conducting supervisory roles eventually culminate to cause shortages in government budgets. Mbeche et al., (2014) argued that skills and knowledge of employees influence the future adoption of a new technology. They further argued that implementing e-procurement necessitates knowledgeable and skilled employees, therefore,

the conspicuous lack of such personnel has attributed to delay in e-procurement adoption in most public institutions. Literature has established that there exists a direct correlation between an institution's capacity to explore new technology and its pool of human resources.

To adopt computer-based procurement system effectively and efficiently there is the need for the maintenance of employee competence by ensuring that they are trained on related issues so that they can appreciate the legal frameworks and networks of their suppliers in the conduct of their business (Muguro, 2014).

The second problem seen in electronic procurement is lack of technological infrastructure. 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.

Issues concerning information systems development and adoption are central to the e-procurement issue. Rajkumar (2001) identified systems integration as a critical success factor for e-procurement implementation, both with the customer's information infrastructure and in its links to suppliers.

Eadie et al., (2007) noted that most companies lacked the relevant technology (Lack of IT infrastructure) to carry out e-procurement. The research found out that technological integration , data quality, system-to-system integration, and ICT/technical issues have been identified as major challenges for many organizations when implementing 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.

When it comes to other challenges that hinder electronic procurement practices in both private and public companies, lack of top management support was also seen to be a big hindrance. With this regard, a range of studies have identified barriers to the adoption of e-procurement, and 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.

Moving on to the next challenge, one of the major problems seen in electronic procurement adoption and practices is lack of trust and resistance to change. According to Davis (1989), the three constructs that are posited in service quality dimensions are trust, perceived risk and perceived ease of use. The relevance of trust is increased in e-commerce because of the high degree of uncertainty and risk present in most on-line transactions. The most common definition of trust is by Mayers, Davis & Schoorman, (1995) whereby trust is defined as the willingness of a party to be vulnerable to the actions of another party based on the expectations that the other party will perform a particular action important to the trustor. This trust is conceptualized in terms of trustor's beliefs in the trustee's (suppliers) ability, benevolence, and integrity as proposed by Mayer et al. (1995).

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.

Employee resistance to leaving the familiarity of the manual system they have been using for years is a major 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).

Last but not least, high employee turnover and lack of manpower retention were also seen to be some of the major challenges that disrupt successful application of electronic procurement practices. Here, despite the fact that many 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.

2.2 Empirical literature review

Procurement plays a major role in manufacturing and trade, which can significantly influence a company's success. As a core function it is, however, subjected to the mega trends of the market. Its day to day existence is very much defined by growing procurement volumes due to greater concentration of business on core competences, globalization of procurement markets, growing market dynamics as well as the ever shorter product lifecycle (Mühlemeyer 2001.)

Black, P. et al, (2005) stated that electronic tendering is an electronic version of traditional tendering process. It converts traditional acquisition, purchase of goods and services, supply of goods and services into the Electronic process such as E-tendering, E-awarding, E-auction, E-sourcing, by using Internet. E-tendering is basically an expression used to describe the dissemination and receipt of tender information, indication of interest in tendering, receipt of tender documents, submission of tender sum and final selection of successful tender for contracts via the internet.

E-procurement practices refer to the use of computer-internet based system to carry out individual or groups of the procurement process, including search, sourcing, negotiation, ordering, receipt, and post-purchase review (Asumba, 2010). Krawiec (2010) described three types of e- procurement practices systems which are buyer e-procurement practices systems; seller e- procurement practices systems; and online intermediaries.

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 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).

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)

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).

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 he 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 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).

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 present 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)

2.2.1 Critical success factors of electronic procurement

Recently, most private and public owned organizations, manufacturing and services rendering companies procure products and services using electronic data interchange and the internet, the application of e- procurement is certain. However, the implementation of e-procurement is not a guarantee for success for every organization since some of the companies all over the world implement e-Procurement and succeed while some companies failed.

The work of Vaidya et al. (2006) is pivotal in understanding the Critical Success Factors (CSFs) for the successful implementation of e-procurement, particularly in the public sector. Their research highlights the importance of e-procurement as a key component of e-governance initiatives and emphasizes the need to identify and address the factors that contribute to its success. Below are a detailed explanation of their contributions and the reconstructed set of CSFs for e-procurement implementation:

2.2.1.1 Staff training

Staff Training on the procurement practices and the use of e-procurement tools are vital to the success of an e-Procurement initiative (WB, 2003). The staffs of an organization need to obtain the necessary skills that can enable them to operate effectively and efficiently while using the new e-procurement system. If staff is not adequately trained, they may not be able to own the e-procurement system and this may contribute to failure. The success of e-procurement initiative depends on users and buyers making use of the new process and system. The solution must attract end users to view e-Procurement as the preferred means by which to purchase goods and services (KPMG, 2001).

A study conducted by Paniand Kar (2011) mentioned that training and capacity building of staff in procurement practices is a critical factor for successful e-procurement implementation. The staff needs to be well trained and equipped so as to be well conversant with the e-procurement systems.

For e- Procurement system to be successful, it should allow employees to focus on their day jobs without sacrificing the visibility and management needs to effectively control organizational spending. This can be achieved through staff training and communicating all the guidelines and procurers that can help easy use of the technology (kibet, 2013.)

H1- Staff training positively affects the electronic procurement practices of EATI

2.2.1.2 System integration

It is crucial to decide the level of integration required between the e-Procurement solution and existing information systems (KPMG, 2001). The CIPFA report reasoned that if integration issues are complex, it is more likely that underlying business processes within an organization should be changed or adapted (ECOM, 2002). It is also essential to link the e-Procurement system to the financial management system in order to accelerate the process of online payment to suppliers (WB, 2003). It is needed for purchase transactions performed through an electronic ordering transaction support system to be reflected in an agency's Financial Management Systems and communicated to suppliers for an e-procurement system to be effective and ultimately being successful.

It is crucial that the system is integrated with existing IT systems and the information shared in real-time across systems is reliable and accurate. All the stakeholders should have controlled access to the e-procurement system data (Panda, P and Sahu, G. P., 2012.)

H2- System integration positively affects the electronic procurement practices of EATI

2.2.1.3 Performance measurement

The continuous measurement of the key benefits is regarded as vital to the successful delivery of the business case. Measurement drives behavior and is a key to making the change a success (Birks et al., 2001). Establishing goals and baselines is very important. According to CGEC (2002), a general lack of measurement capability ensures management has only limited tools for assessing organizational progress. It is important to define key performance indicators (KPIs) early in the process to enable successful benefits tracking and distil the business case into measurable KPIs. These KPIs should then be monitored throughout the project.

H3- Performance measurement positively affects the electronic procurement practices of EATI

2.2.1.4 Top management support

Top management must involve the project manager, any consultants working with the committee and agency staff to develop an implementation strategy (ECOM, 2002). In this regard, considerable attention and support need to be provided by senior management to ensure that the procurement reform has been well understood in the agency (S&A, 2003). Furthermore, the executive management team is responsible for setting the vision and goals, bringing about collective commitment for change in process and organizational structures, and formulating the policies and strategies necessary to put an e-Procurement initiative in place (WB, 2003).

E-procurement implementation success is closely related to the support from the top management in the organization. This research confirmed that top management factor have a significant impact on the successful e-procurement implementation (Ari Prasetyo, 2019.)

H4- Top management support positively affects the electronic procurement practices of EATI

2.2.1.5 High information quality

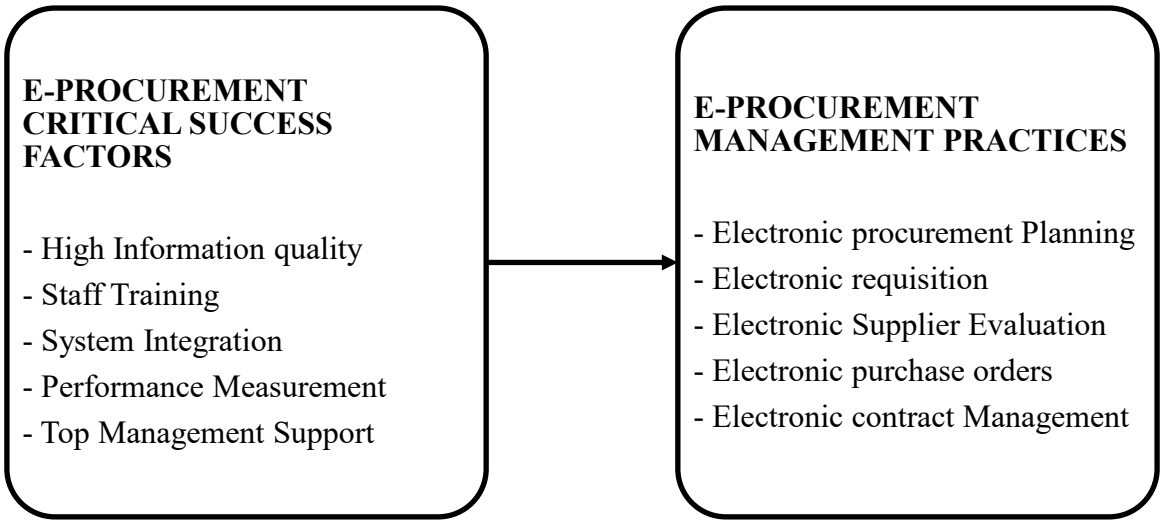
Information quality is seen to capture the e-commerce (web) content issue. In the context of e-procurement success, web content should be personalized, complete, relevant, easy to understand, and secure if one expect buyers or suppliers to initiate transactions via the Internet and to return to the site on regular basis. The success of e- procurement also depends on communication to the users (Birks et al, 2001). The organization adopted an e-procurement system must be able to communicate this information to the users. Distorted communication of information may lead to failure of the system. The World Bank (2003) suggests that developing an e-Procurement system in an open environment allows it to link to other systems for interoperability and simplifies upgrading the system.

H5- High information quality positively affects the electronic procurement practices of EATI

2.3 Conceptual framework

The conceptual framework provides a structured approach to understanding the relationships between key components of electronic procurement systems. In the studied thesis, the conceptual framework connects e-procurement practices, challenges, to critical success factors.

Figure 2-1: Conceptual framework of the study



Source: Self depicted, and partially adopted from Shiferaw-Mitiku-Tebeka and Yessuf (2019)

2.4 Hypothesis summary

Critical Success Factors

H0- Variables of critical success factors of e-procurement practices have no effect on electronic procurement practices of EATI

H1- Staff training positively and significantly affects the electronic procurement practices of EATI

H2- System integration positively and significantly affects the electronic procurement practices of EATI

H3- Performance measurement positively and significantly affects the electronic procurement practices of EATI

H4- Top management support positively and significantly affects the electronic procurement practices of EATI

H5- High Information quality positively and significantly affects the electronic procurement practices of EATI

CHAPTER THREE

METHODS OF THE STUDY

3.1 Description of the study area

The Ethiopian Agricultural Transformation Institute (EATI), 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) With this regard, the study centered the Ethiopian Agricultural Transformation Institute Head Office, located in Addis Ababa, Ethiopia.

3.2 Research design

Research design is fundamental to the successful execution of research activities, particularly in exploring complex subjects like electronic procurement practices. Just as a blueprint ensures that a construction project is efficient and aesthetically pleasing, a well-structured research design provides a clear roadmap that guides various phases of the study (Kothari, 2004).

The study design employed in this study was explanatory research design, where a cross-sectional time framework was used to collect data in the different departments of the organization at a single point in time and assess the e-procurement practices of the Ethiopian Agricultural Transformation Institute (EATI). This design facilitated a detailed examination of the current practices and generated empirically grounded insights to inform future strategic, institutional, and policy decisions.

3.3 Research approach

The preferable research approach used in this study was mixed-method approach with both quantitative and qualitative 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).

The study employed a quantitative research approach to systematically analyze electronic procurement practices using numerical data. A structured questionnaire was designed and distributed to employees within EATI using the survey method. The survey consisted of closed-ended questions to gather measurable insights on e-procurement practices, challenges, and CSF.

3.4 Population and sampling

3.4.1 Target 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 e-procurement system, which is a part of the ERP system implemented in the organization, and are familiar with e procurement practices, which amounted to 254 employees.

3.4.2 Sampling techniques

In this study, simple random sampling was employed to choose questionnaire respondents, while purposive sampling was used to select interview subjects. These techniques were selected for the following reasons: first, random sampling will give every member of the population an equal chance to participate; on the other hand, purposive sampling will assist 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 (2025), there are 254 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 (Feven, 2019).

$n = N / 1 + N*(e)^2$,

Where n = sample size, N = population size, and e = constant value (0.05).

Which gives,

$n = 254 / 1 + 254*(0.05)^2$,

$n = 254 / 1 + 254*0.0025$,

$n = 254 / 1 + 0.635$,

$n = 254 / 1.635$, which gives a result of n = 155.

Accordingly, as per the result above, from the total 254 populations the researcher will approach 155 respondents.

When it comes to the interview questions, several key informants (six directors from various departments of the organization selected based on purposive sampling) were interviewed for the qualitative aspect to gain deeper insight with regards to the E-procurement practices within the organization, and the associated challenges and critical success factors.

3.5 Data collection

Primary data was collected from the Ethiopian Agricultural Transformation Institute's Head office employees across several departments through structured survey questionnaire and semi structured interviews. The researcher gathered secondary data on the Ethiopian Agricultural Transformation Institute's published works, papers, website, annual reports, and documents.

3.6 Reliability and validity tests

To assess the validity and reliability of the data collection instruments used in this study, and the subsequent data collected, two methods were utilized. Face validity was utilized to assess validity, while Cronbach's alpha was utilized to verify reliability.

First, with regards to validity of the study, a pilot study using a limited sample size was carried out to detect potential problems with the phrasing or interpretation of the test items. Furthermore,

validity of the data collection methods of the study was ensured through the employment of study parameters that have been employed in a standard manner.

With regards to the reliability of the study, 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).

With this regard, the results of the study regarding Cronbach's alpha scores suggest that the variables included in this study have passed the metric, since all results are above 0.7, as shown in the table below:

Table 3-1: Cronbach's alpha results for the study variables

Variable	Number of Items	Cronbach's Alpha result
Electronic Procurement Practices	15	0.984
Top Management Support	4	0.926
Staff Training	4	0.881
System Integration	4	0.924
High Information Quality	4	0.847
Performance Measurement	4	0.843

Source: Survey (2025)

3.7 Data analysis techniques

When it comes to the quantitative data that was collected for this study, the data collected through the questionnaires was first coded and analyzed using the Statistical Package for the Social Sciences (SPSS) version 23. Regarding this, descriptive statistics, including frequency,

percentage, and mean, were used to summarize and generally present the data. According to Amin (2005), descriptive statistics provide techniques for numerically and graphically presenting information that offers an overall view of the collected data.

To analyze and present the descriptive data collected for this study through means and standard deviations, it was found essential to find the weighted averages for the likert scales, which will help us interpret the means obtained in this study. Hence, using the method developed by (Alfarra (2009), as cited by Alonazi (2019)), first, the total gaps between the five scores of the likert scale used in this study was seen to be 4 gaps, and this was divided by the total number of scores used which was five, as it was a five-point likert scale. Hence, this result of 0.8 was then used to calculate the weighted averages to represent the degree of agreement to each result. The table provided below shows the weighted averages based on the calculated amount and their associated interpretations.

Table 3-2: Weighted averages used for interpretation of descriptive statistics

Weighted average	**Result Interpretation (Agreement Level)**
1.00 - 1.79	Very Low
1.80 - 2.59	Low
2.60 - 3.39	Moderate
3.40 - 4.19	High
4.20 – 5.00	Very High

Source: (Alfarra (2009), as cited by Alonazi (2019))

Hence, the means of the different independent and dependent variables included in this study is interpreted based on this scale.

In addition to this, inferential statistics were utilized to assess the relationships between the independent variables and the dependent variables, and to test the hypotheses of the study. To examine the relationships between the variables under investigation, linear regression analysis was employed. Rosenthal (2017) explains that linear regression is a statistical method used to model the relationship between a dependent variable and one or more independent variables.

Hence, when it comes to the multiple linear regression analysis, a regression model equation was presented to show the relationships between the independent variable, E-procurement critical success factors, with the dependent variable, E-procurement practices.

The following model represents the effect of E-procurement success factors on E-procurement practices. It is presented as:

$$PRACTICE = \alpha + \beta1*TMS + \beta2*ST + \beta3*SI + \beta4*HIQ + \beta5*PM + Ɛ$$

Where:

- PRACTICE represents E-procurement practices,
- TMS represents Top Management Support,
- ST represents Staff Training,
- SI represents System Integration,
- HIQ represents High Information Quality,
- PM represents Performance Measurement,
- α represents the intercept (constant term),
- $\beta1 – \beta5$ represent the regression coefficients for each independent variable respectively,
- Ɛ represents the error term.

After this, to assert that all the critical assumptions of Classic Linear Regression Models are met, which are required to ensure the robustness of a linear regression model, several key diagnostic tests were undertaken. These include Linearity tests, Normality tests, Autocorrelation (Serial Correlation) tests, Homoscedasticity tests, and multicollinearity tests. Regression analysis proceeded only after these diagnostic tests produced a passing result, and all CLRM assumptions were met.

In addition to the above analyses, the qualitative data collected through interviews was transcribed, coded, and categorized, and key themes were developed through a thematic approach, which are presented in Chapter 4.

3.8 Ethical considerations

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

CHAPTER FOUR

RESULTS, DISCUSSIONS AND INTERPRETATION

In this chapter, the results of the study are presented and discussed, while the study findings are interpreted and scrutinized, and are compared with other relevant studies. With this regard, concerning this study, the descriptive and inferential statistics regarding e-procurement practices and critical success factors of e-procurement practices at Ethiopian Agricultural Transformation Institute are presented and discussed in detail below.

4.1 Response rate

With the aim of collecting data for this study, a total of 155 questionnaires were distributed to the 155 individuals included in the sample size of this study via google forms to be completed by them, and a total of 149 questionnaires were returned. With this regard, the response rate was found to be 96.12%, which shows a strong response rate, which is representative of the target population. In addition, a total of 6 interviews were conducted with senior managers (directors) from the various departments in the organization.

4.2 Demographic statistics of respondents

Regarding the current study, for the purpose of explaining the demographic characteristics of the respondents of this study, various variables such as Gender of respondents, Age of respondents, highest level of education of respondents, Number of year's respondents have been working in EATI, Department or functional area of respondents and Work position of respondents were used. Hence, after analysis of the collected data, each of these demographic variables was described using frequency and percentages.

To start with the first variable, gender of the respondents, it was seen that 111 respondents (74.5%) were male. Moreover, 38 (25.5%) were found to be females. Hence, this shows higher number of males have participated in this study that females.

Moving on to the second variable, the age of respondents, the results of the study showed that majority of the respondents were in the age group of 31-40 years old, with a frequency of 76

respondents, which is 51% of the total respondents. A further 47 respondents were seen to be in the age range of 41-50 years old (31.5%), while the rest 13 respondents were seen to be in the age range of 20-30 years old.

Regarding the highest education level of the respondents, the results showed that a big majority of the respondents have attained master's degrees and above (91 respondents) which translates to 61.1% of the total respondents. In addition, 48 respondents (32.2%) answered that they are holders of bachelor's degrees, while only 7 (4.7%) respondents had diploma or equivalent level of education, and the rest 3 (2%) respondents were below the diploma level.

Concerning their years of experience at the organization, 53% of the respondents (79 people) answered that they have been at the organization for 1-5 years, while 48 (32.2%) respondents and 22 (14.8%) respondents responded that they have been at the organization for 6-10 years and above 10 years respectively.

Moving to the next demographic variable, which is the department or functional areas where the respondents work in, the results showed that majority of respondents (45 respondents) work in different programs of the organization, while 18 (12.1%) respondents and 19 (12.8%) respondents worked in procurement and finance departments respectively. In addition, in a similar number to the last two departments, 12.8% of the respondents (19 respondents) worked in the logistics and administration department, and 12.1% of the respondents (18 respondents) worked in the information technology department. In addition to these, 7 (4.7%) respondents, 13 (8.7%) respondents, and 10 (6.7%) respondents worked in the human resources, strategic affairs, and sub-grant departments of the organization respectively.

Table 4-1: Demographic characteristics of respondents

N=149

Demographic Characteristics	Frequency	Percent
Gender of respondent		
Male	111	74.5
Female	38	25.5
Age of respondent		
18 - 30 years old	13	8.7
31 - 40 years old	76	51.0
41 - 50 years old	47	31.5
Above 50 years old	13	8.7
Highest level of education of a respondent		
Below diploma	3	2.0
Diploma or equivalent	7	4.7
Bachelor's degree	48	32.2
Master's degree and above	91	61.1
Number of years a respondent has been working in EATI		
1 - 5 years	79	53.0
6 - 10 years	48	32.2
Above 10 years	22	14.8
Department or functional area respondent works in		
Procurement	18	12.1
Finance	19	12.8
Logistics and administration	19	12.8
Information technology	18	12.1
Human resources	7	4.7
Strategic affairs	13	8.7
Sub-grant	10	6.7
Programs	45	30.2

Work position of respondent at EATI		
Director	10	6.7
Senior manager	10	6.7
Manager	12	8.1
Senior officer	61	40.9
Officer	40	26.8
Assistance	16	10.7

Source: Survey (2025)

Regarding the work position of the respondents under study, a majority of the respondents were found to be serving in the positions of senior officer and officer, with 40.9% (61 respondents) and 26.8% (40 respondents) of the total respondents respectively. In addition, the position of the respondents was seen to be 10 directors (6.7%) and 10 senior managers (6.7%), along with 12 managers (8.1%). Moreover, the rest 16 respondents were found to be assistants (10.7%).

4.3 Descriptive statistics analysis results

Concerning the descriptive statistics analysis results of this study, to describe the respondents' answers to the various questions presented under different variables, mean and standard deviations were used. The results below describe the descriptive statistics of E-procurement challenges, E-procurement critical success factors, and E-procurement practices of the organization.

4.3.1 E-procurement practices of EATI

When it comes to the dependent variable, the results of the descriptive statistics analysis showed that the mean values of the questions used to assess E-procurement practices within the organization were found to be in the range of 2.94 to 3.4, showing that the participants of this study had more or less, moderate views on this variable. Moreover, when it comes to the standard deviation results of this variable, the values were seen to range between0.78590 to 0.95846. This means any individual observations of the variable vary from the mean value by these standard variation values for the fifteen questions under this variable.

Table 4-2: Descriptive statistics of E-procurement practices

N=149

Variables	Mean	Std. Deviation	Rank
Electronic Requisition			**3**
The electronic procurement system allows users to electronically submit purchase requisitions.	3.29	0.85030	
The electronic procurement system captures all necessary details like item description, quantity, cost, and justification.	2.94	0.84812	
The electronic requisition process minimizes unnecessary or duplicate purchase requests.	3.13	0.82738	
Grand Mean of Electronic Requisition	3.12		
Electronic Procurement Planning			**4**
Users can submit their annual procurement needs/ plans electronically.	2.94	0.79889	
Top management actively supports e-procurement planning practices.	3.02	0.87356	
The procurement system helps in setting realistic timelines for purchases.	3.28	0.88593	
Grand Mean of Electronic Procurement Planning	3.08		
Electronic Supplier Evaluation			**1**
Bid evaluation is conducted entirely electronically within the e-procurement system.	3.40	0.87625	
The electronic procurement system electronically evaluates bids against set criteria.	3.02	0.83399	
The electronic procurement system is capable of ranking bid results.	3.21	0.93920	

Grand Mean of Electronic Supplier Evaluation	3.21		
Electronic Ordering			**5**
The electronic procurement system allows for sending purchase orders electronically to suppliers.	2.96	0.87672	
The electronic procurement system facilitates online approval of purchase orders.	3.11	0.83448	
The purchase order records are electronically stored and retrievable.	3.03	0.95448	
Grand Mean of Electronic Ordering	3.04		
Electronic Contract Management			**2**
The electronic procurement system allows for recording and modifying contracts electronically.	3.01	0.88910	
The electronic procurement system allows for tracking and monitoring supplier performance.	3.20	0.95846	
The electronic procurement system sends automated alerts before key deadlines, such as contract expiration.	3.28	0.93780	
Grand Mean of Electronic Contract Management	3.16		

Source: Survey (2025)

Here, when it comes to the respective overall means (grand mean) for the five variables within E-procurement practices, it was seen that Electronic Requisition, Electronic Procurement Planning, Electronic Supplier Evaluation, Electronic Ordering, and Electronic Contract Management had overall scores of 3.12, 3.08, 3.21, 3.04 and 3.16 respectively, which reflect a generally moderate or neutral perceptions of the organization's E-procurement practices.

4.3.2 Critical success factors of E-procurement practices

When it comes to E-procurement critical success factor variables, the study used means and standard variations to analyze and present the data collected regarding the five different e-procurement critical success factors variables, which are top management support, staff training,

system integration, high information quality and performance measurement. The results are discussed in detail below.

Table 4-3: Descriptive statistics for E-procurement critical success factors variables

N=149

Variable	Mean	Std. Deviation	Rank
Top Management Support			**1**
Availability of top management support positively contributes to successful implementation of the e-procurement system.	2.96	0.94354	
Possession of sufficient resources (e.g., budget, personnel, and technology) by the top management contributes to successful operation and development of e-procurement.	3.09	0.97213	
Top management communicates the importance of e-procurement and its benefits clearly to all employees.	3.30	0.86762	
Top management prioritizes and values employee feedback regarding the e-procurement system, to address challenges and made improvements.	2.91	0.86940	
Grand Mean of top management support	3.06		
Staff Training			**4**
Employees receive adequate training on use of the e-procurement system, which impacts the success of e-procurement practices.	3.06	0.99477	
The training provided on e-procurement was relevant to my job responsibilities and tasks.	2.68	0.87832	

The e-procurement training materials, including guides and presentations, were straightforward and easy to understand, which positively impacted the success of the e-procurement process.	3.01	0.92988	
Ongoing technical support for staff regarding e-procurement system significantly impacts the success of e-procurement practices.	3.06	1.02817	
Grand Mean of staff training	2.95		
System Integration			**3**
The selected e-procurement software is user-friendly, meets organizational needs, and positively impacts the success of e-procurement practices.	3.07	0.93480	
The e-procurement system is well integrated with the overall business strategy, significantly enhancing e-procurement practice success.	2.72	0.93780	
The quality and consistency of data transferred between systems have been excellent since integration, which positively impacts e-procurement practice.	3.19	1.06777	
The e-procurement system effectively integrates with other enterprise systems such as finance, inventory, and supplier management, facilitating fast decision-making and enhancing the overall e-procurement practices.	3.02	0.98961	
Grand Mean of system integration	3.00		
High Information Quality			**5**
The accessing of consistent and accurate information positively impacts for successful procurement practices.	2.82	1.08261	
The information I rely on is provided in a timely manner, allowing me to make decisions or take action when needed.	2.83	1.02273	

The information I receive is complete and provides all the necessary details for my tasks and enhances e-procurement practices.	2.87	0.94909	
The information is presented in a clear and understandable format improves e-procurement practices.	2.92	0.90432	
The e-procurement system supplies essential information for e-procurement analysis, positively impacting procurement practice.	3.03	1.00281	
Grand Mean of high information quality	2.89		
Performance Measurement			**2**
The e-procurement system reliably captures real-time performance data for effective monitoring e-procurement practice.	3.10	1.00502	
The e-procurement system includes clearly defined Key Performance Indicators (KPIs) that align with our procurement goals improves e-procurement practice.	3.17	0.96844	
Our organization actively evaluates the impact of the e-procurement system on procurement processes.	2.90	0.87403	
E-procurement performance measurement results drive continuous improvement in the e-procurement system and positively impacts e-procurement practice outcomes.	2.97	0.99285	
Grand Mean of performance measurement	3.03		

Source: Survey (2025)

4.3.2.1 Top management support

In perspective to the above variable (lack of top management support) which measured the direct opposite of this variable, the results of each individual question for this variable showed that the respondents were more or less in neutral or moderate views. The results showed that the mean scores for the questions used to measure lack of employee competency ranged from 2.91 to 3.30,

while the standard deviation results, which range from 0.86762 to .97213, showed that the respective answers given by each respondent were moderately scattered around the mean.

Here, the overall mean score of 3.06 reflects a neutral or moderate view on the availability of top management support in the organization, which suggests the views among the respondents regarding this topic showed agreement not disagreement, which was consistent with the topics above.

4.3.2.2 Staff training

Here, regarding the variable of staff training, the results of the study showed that participants of the study had generally neutral or moderate points of view regarding the questions pertaining to it. This can be seen in the mean scores for the questions employed to assess staff training, which were in the range of 2.68 to 3.06. In addition, the standard deviation results were found to be in the range of 0.87832 to 1.02817, which shows that the answers of the study respondents were relatively moderately scattered around the respective mean values for each of the questions.

With this variable, the overall mean score of 2.95 suggests that employees have neutral or moderate views regarding staff training on E-procurement practices, which shows there might be room for improvement.

4.3.2.3 System integration

Regarding system integration, the results of this study showed that the respondents were more or less having neutral views with the questions of this variable. The results showed that the mean scores for the questions used to measure system integration ranged from 2.72 to 3.19, while the standard deviation results ranged from 0.93480 to 1.06777, showing that the respective answers given by each respondent were moderately scattered around the mean values of each question.

The overall total mean score of 3.00 reflects a generally neutral or moderate view of the variable, which is in line with the responses to each individual question within this variable, and also which is similar to other variables of critical success factors of E-procurement at the organization.

4.3.2.4 High information quality

Regarding the responses for each of the questions for this independent variable, the results of these five questions showed that the employees had neutral views concerning this variable as explained in the mean values ranging from 2.82 to 3.03. The standard deviation results for these questions also showed that the values lie in the range of 0.90432 to 1.08261, which shows that the answers of the respondents were relatively moderately scattered around the respective mean values for each of the questions.

When it comes to High information quality variable, the aggregate mean score of 2.89 was seen to be slightly positive, indicating that employees neither agreed nor disagreed that there was availability of high information quality in the organization concerning E-procurement practices.

4.3.2.5 Performance measurement

Regarding performance measurement, the respondents had neutral or moderate answers concerning the questions used to measure this variable, as can be seen in the mean values which range from 2.86 to 3.17 for the four questions employed. In addition, the results also showed that the standard deviation for the four questions lies in the range of 0.87403 to 1.00502, which explains that the answers of the respondents were relatively moderately scattered around the respective mean values for each of the questions.

The study's overall mean for this specific variable was 3.03, which was viewed as a mostly neutral or moderate level of agreement in terms of the performance measurement of the e-procurement practices of the organization, which is similar to results of the other success factor variables.

4.4 Multiple linear regression analysis results

In this study, the extent and significance to which the explanatory factors account for the variance in the dependent variable are determined through the use of multiple regression analysis. The results of the multiple regression analysis are presented in the following sections.

4.4.1 Linear regression assumptions testing

In this study, the relationships between independent and dependent variables were modeled using multiple linear regression analysis. Therefore, the assumptions of classical linear regression models are examined to see if they are met in order to guarantee the consistency and dependability of the regression analysis. Therefore, the following describes the findings of the tests that were conducted for the linear regression assumptions of this study: the tests for normality, linearity, autocorrelation, multi-collinearity, and heteroskedasticity.

4.4.1.1 Normality test

The assumption that the regression model's error terms, or residuals, are normally distributed is known as the normality assumption of the Classic Linear Regression Model (CLRM). In linear regression analysis, the normality assumption is essential for carrying out reliable hypothesis testing (Wooldrige 2003). In this context, normality was checked using the Shapiro-Wilks test.

Table 4-4: Normality test results for the regression model

Tests of Normality						
	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	Df	Sig.
Studentized Residual	.049	149	.200*	.992	149	.562
*. This is a lower bound of the true significance.						
a. Lilliefors Significance Correction						

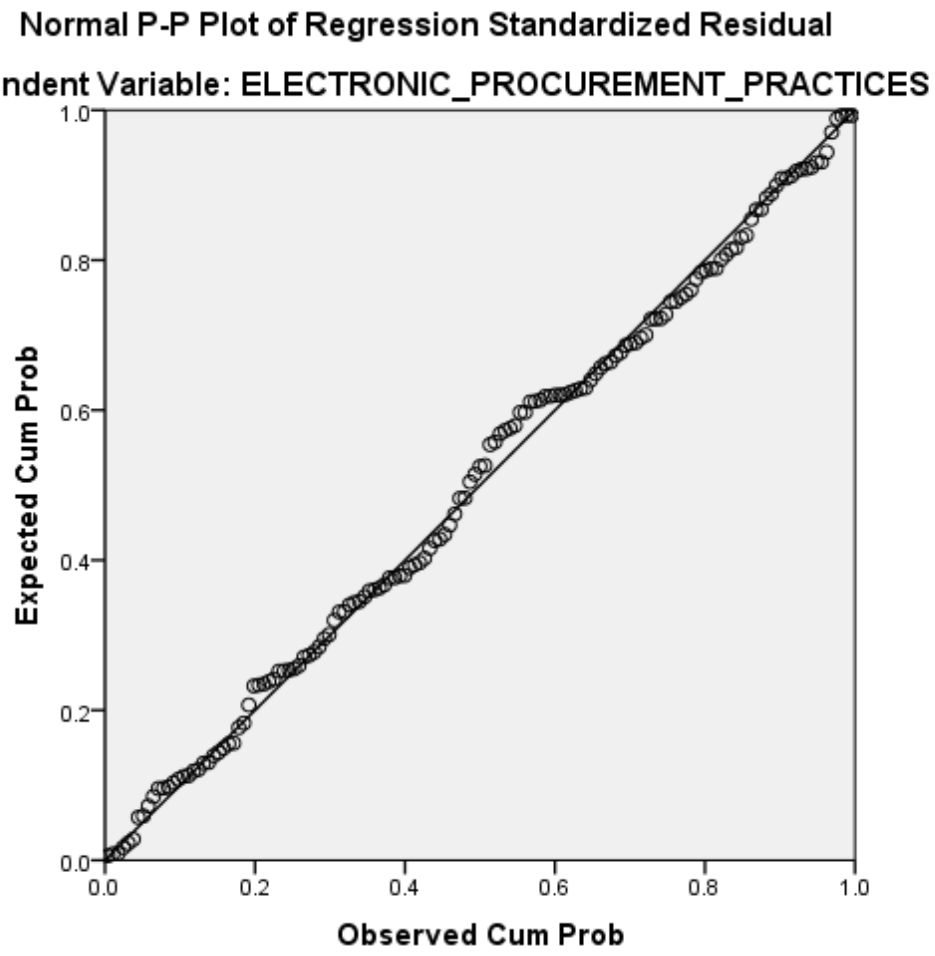
Source: Survey (2025)

As can be observed in the above table, the null hypothesis that the variables have a normal distribution is not disproved because the p-value is greater than the significance level of 0.05. As a result, the residual values of the variables were found to have a normal distribution, meeting the variables' normality requirement.

4.4.1.2 Linearity test

In the Classical Linear Regression Model (CLRM), the linearity assumption refers to the linear relationship between the dependent and independent variables. In particular, it asserts that the dependent variable is a linear function of the independent variables plus an error component. By examining the normal probability plot of the predicted value versus the residuals, one can ascertain whether the study's dataset is normally distributed and whether non-linearity between the predictor values and the residuals is a problem. Following visual examination, the plot in this model revealed a fairly linear relationship between the observed residuals and the anticipated values, which is a potentially acceptable finding. Consequently, the regression model used in this study satisfies the linearity assumption.

Figure 4-1: Normal P-P Plot of the regression standardized residuals for the regression model



Source: Survey (2025)

4.4.1.3 Autocorrelation test

Regarding this assumption, the concept of no serial correlation (autocorrelation) states that the regression model's residuals should not be related to one another; this is assessed using the Durbin-Watson test to see if there is an autocorrelation issue with the regression analysis. A Durbin-Watson score close to 2.0 suggests no detectable autocorrelation, even if the statistic's values range from 0 to 4. In this regard, values between 1.5 and 2.5 are within an acceptable range. Since our obtained value of 2.060 is close to 2.0 and within an acceptable range, the no autocorrelation assumption is satisfied.

4.4.1.4 Multicollinearity test

One of the fundamental assumptions of linear regression is that there is no substantial correlation between any of the study's predictor (independent) variables. Therefore, it is necessary to search for multicollinearity prior to doing regression analysis, as it arises when there is a significant correlation between the independent variables. The study confirms this using the Variance Inflation Factor (VIF), which quantifies the extent to which the correlation between the independent variables influences the precision of regression estimations.

Given the aforementioned considerations, the results of the multicollinearity test show that the linear regression assumption that there is no multicollinearity between the independent (predictor) variables is sufficiently met as the tolerance and VIF values are both within the acceptable range.

Table 4-5: Results of test of multicollinearity for the regression model

Model		Collinearity Statistics	
		Tolerance	VIF
1	(Constant)		
	Top Management Support	.954	1.048
	Staff Training	.943	1.060
	System Integration	.944	1.060
	High Information Quality	.958	1.044
	Performance Measurement	.980	1.021
a. Dependent Variable: Electronic Procurement Practices			

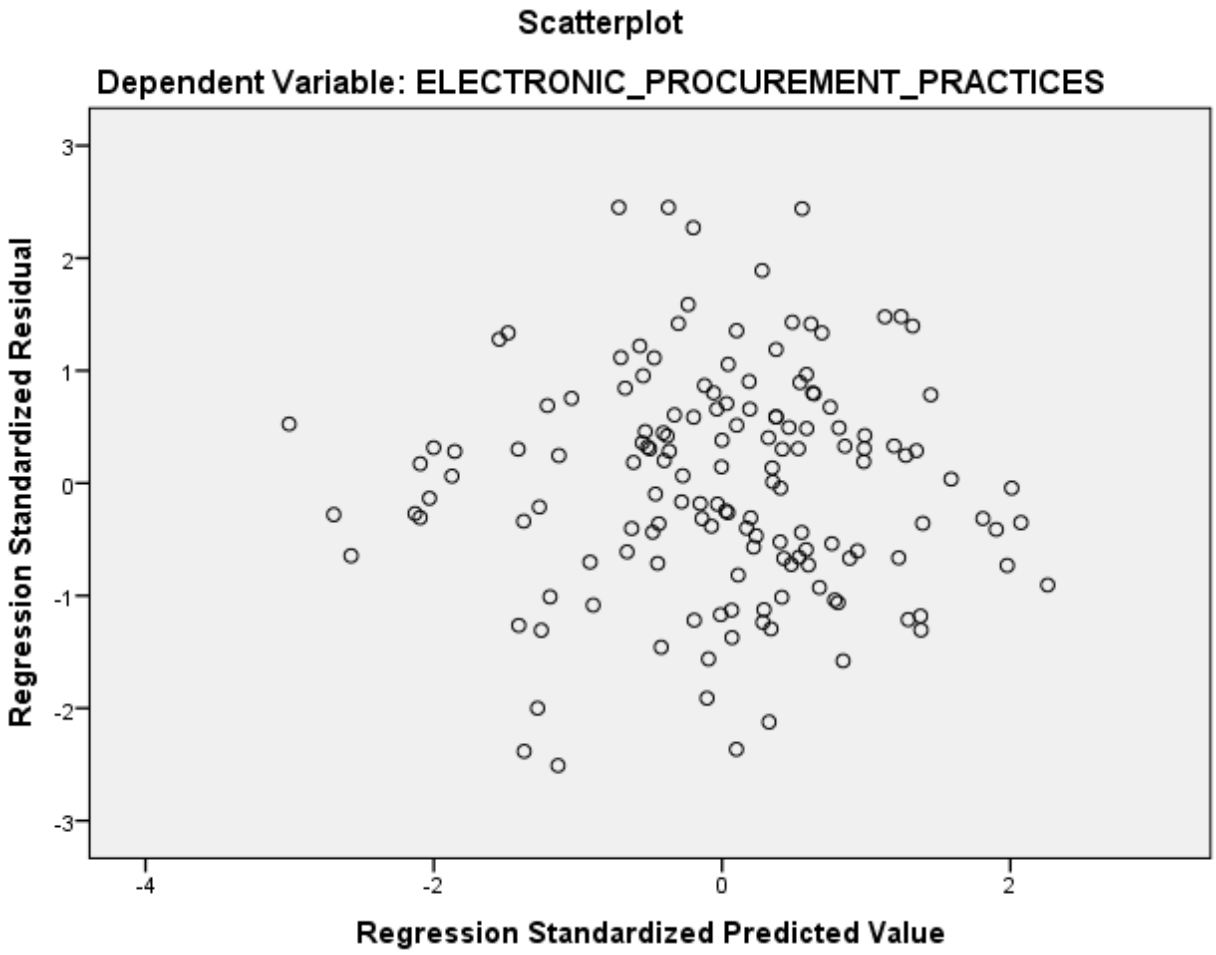
Source: Survey (2025)

4.4.1.5 Heteroscedasticity test

Heteroscedasticity is the term used to describe a regression model in which the variance of the residuals, or errors, is not constant across all levels of the independent variables. The reverse of this is homoscedasticity, which is expected from robust regression models. Hence, this was tested manually by plotting the regression-standardized residual against the scatter plot of the

regression-standardized predicted value for the study's variables. After that, the scatter plot was visually examined for any patterns. With this regard, homoskedasticity assumption is fulfilled as there is no visible pattern that indicates issues of heteroscedasticity.

Figure 4-2: Scatter plot for heteroscedasticity test for the regression model



Source: Survey (2025)

4.4.2 Multiple linear regression analysis results

Multiple regression analysis was used to assess the overall regression effect that all five independent variables have on e-procurement practices in order to understand how much of the

variance in the e-procurement practices the organization can be explained by the five independent variables, which represent e-procurement critical success factors.

Table 4-6: Model Summary for the regression analysis for the regression model

Model Summary[b]					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.729[a]	.532	.515	.55534	2.060
a. Predictors: (Constant), Top Management Support, Staff Training, System Integration, High Information Quality, Performance Measurement					
b. Dependent Variable: Electronic Procurement Practices					

Source: Survey (2025)

The R Square (R^2) and modified R^2 values, which were seen to be 0.532 and 0.515, respectively, reflect the multiple regressions results between the five independent variables representing e-procurement critical success factors and e-procurement practices. According to these figures, the differences in the five independent variables account for 53.2% of the variation in e-procurement practices. Accordingly, the remaining 46.8% variation in e-procurement practices was explained by changes in other factors that were not a part of this study. As per the results, the model used in this study accounts for a moderate amount (53.2%) of the variation in organizational e-procurement practices.

In addition, by using the Analysis of Variance (ANOVA) test, the overall importance of the model fit was examined. Hence, as per the results shown below, which show a high F-statistic and a significance value below 0.05, suggest the presence of a linear relationship between the independent and dependent variables, demonstrating that the null hypothesis of no linear relationship between the independent and dependent variables is rejected.

Table 4-7: Analysis of Variance (ANOVA) test results for the regression model

ANOVA[a]						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	50.072	5	10.014	32.472	.000[b]
	Residual	44.101	143	.308		
	Total	94.172	148			
a. Dependent Variable: Electronic Procurement Practices						
b. Predictors: (Constant), Top Management Support, Staff Training, System Integration, High Information Quality, Performance Measurement						

Source: Survey (2025)

Regarding the specific values of the independent variables' coefficients, the regression analysis findings indicate that each of the five independent factors had a positive statistically significant effect on the dependent variable, e-procurement practices.

Table 4-8: Regression Model Coefficients Analysis for the regression model

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	-1.405	.379		-3.706	.000
	Top Management Support	.348	.056	.360	6.152	.000
	Staff Training	.365	.054	.399	6.775	.000
	System Integration	.343	.053	.382	6.478	.000
	High Information Quality	.322	.052	.365	6.237	.000
	Performance Measurement	.139	.052	.155	2.679	.008
a. Dependent Variable: Electronic Procurement Practices						

Source: Survey (2025)

As seen in the above table, the standardized beta coefficients for the independent variables included in the study were 0.360, 0.399, 0.382, 0.365, and 0.155 for Top Management Support, Staff Training, System Integration, High information quality, and Performance Measurement respectively, which were used as variables of e-procurement critical success factors in this study. When it comes to the statistical equation that represents the relationship between the independent variables and the dependent variables in the regression model, it is represented in this form based on the coefficient figures obtained in the regression analysis and presented in the above table:

E-procurement practices = - 1.405 + 0.360 * (**Top Management Support**) + 0.399 * (**Staff Training**) + 0.382 * (**System Integration**) + 0.365 * (**High Information Quality**) + 0.155 * (**Performance Measurement**) + e

The results showed that all five independent variables in this model had positive beta weights, which in turn shows that there is a direct relationship between them and e-procurement practices. This shows that the effect on the dependent variable of the study, e-procurement practices, will increase directly as we move from one independent variable to the next. Furthermore, the model's findings show that each of the five independent variables for this model were statistically significant at a p-value of less than 0.01, indicating that these five variables representing critical success factors of E-procurement significantly affected the organization's e-procurement practices.

Going into each result in detail, with regards to the regression results of the regression model, high information quality ($\beta = +0.365$, $p < 0.01$) was seen to be one of the variables positively and significantly affecting e-procurement practices in the organization. Concerning this, this result is backed up by a study done by Panayiotou, Gayialis, and Tatsiopoulos (2015), which found that, after implementing e-procurement, European public-sector firms with accurately kept, centralized Master-data registries saw a 30% increase in transaction volumes within their procurement framework.

In addition, with regards to another E-procurement critical success factor variable, top management support ($\beta = +0.360$, $p<0.01$), the results showed that it was also another significant predictor of the dependent variable of the study. These results are in line with the study done by

Marei et al. (2020), which explained that, in Jordanian companies, e-procurement utilization rose by over 27% over two years when there was a clear executive leadership in the form of official mandates. Moreover, another variable which was seen to have a positive significant effect on e-procurement practices was seen to be staff training ($\beta = +0.399$, $p < 0.01$). This result is similar to a study done by Altayyar and Beaumont-Kerridge (2016), which found that Saudi Small and Medium Enterprises that offered structured training programs had a 25 percent greater user adoption rate of their e-procurement systems than those that did not.

Furthermore, the remaining two e-procurement critical success factor variables, performance measurement ($\beta = +0.155$, $p < 0.01$) and system integration ($\beta = +0.382$, $p < 0.01$) were also seen to significantly and positively affect e-procurement practices. These results were seen to be similar to those obtained by studies such as Chen et al. (2021), which showed that local governments that had smooth connections across their finance, ERP, and e-procurement systems saw an 18% decrease in manual reconciliations, which increased process efficiency overall. In addition, another study done by Panayiotou et al. (2015) showed that integrating KPIs and other performance criteria raised user engagement in their system by more than ten percent.

Moving on from the overall regression analysis results of the regression model, to supplement the quantitative data obtained from the study for this model, which was presented above, interviews were carried out with directors of the various departments of Ethiopian Agricultural Transformation Institute to identify their detailed perspectives on the challenges, critical success factors and practices of E-procurement within their organization. These interview questions were administered to the selected respondents before they filled in the questionnaire given to them so that there won't be any bias in their answers and will give an unfiltered open response to the questions. Hence, in this regard, their answers were analyzed, and the following detailed answers were obtained.

To start, concerning directors' experiences with the current e-procurement management practices at EATI and the critical success factors they believed would improve the implementation of the e-procurement system in the organization, the respondents stated that the e-procurement system in place at the organization has delivered good improvements in the efficiency, effectiveness and transparency of the procurement process of the organization. The digital procurement system has

improved procurement activities, and minimized time consuming, paper-based procurement processes, which reduces the manual handling of the procurement for the organization, which in turn reduces document related and corruption related risks.

With this regard, the various checks and balances within the E-procurement system ensure the system works effortlessly with key audit methods ensuring that budget allocations and the various expenditures directly align with the items that are to be procured.

In addition, the e-procurement platform provides a dashboard with real time data, showing all required information, including finances, stock, procurement orders, and so on. This in turn helps in identifying any in efficiencies, such as delays in bid evaluation or delays in receiving stock. Moreover, as the platform only allows suppliers with verified legal and tax standing to submit bids, it ensures the procurement directives of the government are met, while it enhances the transparency in front of other organizations that directly help the institute.

Another potential positive from the experiences of the directors regarding the e-procurement system is the ease with which the system can be used, and how the system allows even the people which are not tech-savvy to get acquainted with it, learn it well, and use it for their procurement needs. In addition, the various reports and statistics the system generates helps the organization in setting the quarterly and annual procurement budgets and significantly shapes the procurement policies of the organization, through data-based decision making. As per the respondents, the efficiency of the system in these ways has made their job somewhat earlier.

All in all, the directors responded that the E-procurement system in place at the organization aligns with the goals and objectives of the organization and has been a tremendous help to them through ensuring transparency, accountability and efficiency, while some of the problems mentioned above have hindered them at some points of time previously.

Moving on to the next point, the respondents highlighted various critical points that determine the success of the E-procurement system. The first factor they deemed essential for the success of the e-procurement system is strategic leadership. A top management that consistently prioritizes and pushes forward the digital system will steer the organization in adopting and using the system effectively, while also clearing up any problems or roadblocks that may arise in the

implementation and utilization of the e-procurement system, while also ensuring accountability and transparency of the whole system.

The second critical success factor raised by the respondents was technological integration. Where there is a robust, efficient, and responsive system in the organization, it inspires confidence in the employees who are the users, and the e-procurement system is no different. A system where everything essential for its robust use and seamless flow has been installed will work effectively and proficiently. With this regard, all the necessary items required for this system to operate effectively have to be installed fully by the organization. Associated with this, the third point that was raised as a critical success factor by the respondents is users' capacity building. In order to ensure the system is efficient and effective, the users of the digital procurement platform have to have know-how of how to use the system. For this, both collective and individual on-the-job training are necessary. In addition, refresher training can be given to users who are familiar with the system but have not used it in a while.

The other critical success factor raised by the respondents is robust policy and Standard operating procedures. A successful E-procurement system needs standards that ensure effective decision-making and eliminate any inefficiency. These standards eliminate any sub-par performances from suppliers, while also ensuring the organization is accountable and transparent in each step of its procurement processes. In addition, when it comes to policies, stakeholder engagement is also a critical success factor which determines the effectiveness of the system. Stakeholders such as the government public procurement agency have to be involved in the successful implementation and maintenance of the system to ensure the organization's e-procurement systems will be successful. Moreover, ensuring continuous improvement of the system is essential to acquire accurate and timely data, and reduce the time it takes to respond to bids, as well as to improve the suppliers' performance.

Finally, one of the major critical success factors mentioned by the respondents of the study is the alignment of the organization's E-procurement system with the organization's goals, objectives, mission and vision. As the primary goal of the organization is to drive the agricultural transformation of Ethiopia, the system has to be reflective of this mission, which is solidified by

the fact that a successful E-procurement system, both directly and indirectly, helps in meeting this goal, as it boosts the operations of the organization.

In addition to the responses to the questions regarding critical success factors of e-procurement practices, the respondents were also asked questions about the challenges they observe in the organization concerning the e-procurement practices in place. With this regard, when it comes to the issue of challenges of e-procurement practices that are observed in the organization, the respondents expressed that cell network connectivity is one of the major problems they faced with regard to the e-procurement platform, as it can be very hard to record data and order items in remote locations as well as in metropolitan areas. In addition, infrequent problems of breaks in the system from time to time, whether it is because of the unstable internet issue that is prevalent in the country or problems with the systems itself sometimes delay acquisitions of items and services that are essential for the organization. This might translate to interruptions of the operations of the organization, which get more pronounced in operations taking places like the rural parts of the country, which are heavily dependent on agriculture. To help with this problem, they have tried various solutions, with varying levels of success. For this problem, they tried to ensure all field operation teams have portable internet routers, and even in the case of no internet working at all, they required the employees to save drafts of procurement requirements on offline methods, to be filled when the system works.

In addition to the above challenge, another challenge observed by the respondents was that there was some resistance to change among some of the long serving employees of the organization. The change from the paper-based procurement system to the digital system was not welcomed by some of the long-serving employees who were accustomed to the old ways. To alleviate this problem, continuous collective training was conducted on the new system, and various on-the-job individual training sessions were also conducted by each team in the departments.

In addition to this, the other problem they mentioned is similar to one of the above-mentioned problems. For some specialized works within the organization, items or services which might not be routine for the organization might be required. And with this, sometimes the system doesn’t allow these products and services, which makes the procurement process be undertaken by the old method for these products. For this problem, the management of the organization tried to

remedy it by involving relevant procurement and IT professionals and ensuring these products are included in the products/services list for future procurements.

Another problem observed by the respondents is a very infrequent problem observed in interoperability of the system with other functions such as the organization's financial digital system, where sometimes there are some system problems within the organization's system, and this leads to errors, because of the breakdown in the system. To ensure the elimination of this problem, IT professionals are always conducting routine maintenance of the system and ensuring everything works properly.

On the other side, the respondents also pointed out that the system's rigid structure, and lack of flexibility may sometimes be hindrances while using the system to procure items. For example, items which are not included in the list of products in the e-procurement system will need to be manually sourced, which means using manual RFQs, which in turn means time taking procurement processes, which will affect the operations associated with that item. This might also be a major problem in specialized items which might be time sensitive.

4.4.3 Hypothesis testing

In this section hypothesis testing has been carried out for the six hypothesis that were developed corresponding to the model used in this study: six hypotheses assessed the effects of critical success factors of e-procurement practices variables on e-procurement practices (one hypothesis was a null hypothesis). After conducting the regression analysis for the model used in this study, each hypothesis was evaluated, and verdicts were reached by inspecting the direction and significance of the respective regression coefficients.

Table 4-9: Hypothesis test for the regression model variables

Hypothesis	Verdict
Critical Success Factors of E-procurement practices	
H0- Variables of critical success factors of e-procurement practices have no effect on electronic procurement practices of EATI	Rejected
H1- Staff training positively and significantly affects the electronic procurement practices of EATI	Accepted
H2- System integration positively and significantly affects the electronic procurement practices of EATI	Accepted
H3- Performance measurement positively and significantly affects the electronic procurement practices of EATI	Accepted
H4- Top management support positively and significantly affects the electronic procurement practices of EATI	Accepted
H5- High information quality positively and significantly affects the electronic procurement practices of EATI	Accepted

Source: Survey (2025)

4.4.4 Value analysis of regression findings

Here, the statistical regression results are translated into a practical prioritization for the results obtained from the Ethiopian Agricultural Transformation Institute. The multiple regression model that was employed in this study used five independent variables (predictors), namely Top Management Support, Staff Training, System Integration, High Information Quality and Performance Measurement, to explain the variation in Electronic Procurement Practices. The study was conducted by using a total of 149 respondents (observations) and the R^2 result for the regression model was found to be 0.532, which shows that the model explains roughly 53.2% of the variance in the electronic procurement score.

Hence, in this regard, the aim of this value analysis is to dissect the regression results through giving varying prioritization or importance levels to each of the independent variables by quantifying the expected level of change from each critical success factor and determining each

independent variable's unique contribution to the model's explained variance to show which of the critical success factors should be prioritized. Here, the model's standardized coefficients are first converted into raw, outcome-scale changes; then each predictor's unique contribution computed and explained using semi-partial (part) correlations and sr^2; and finally, a decomposition of R^2 was computed using Shapley values so that shared explanatory power is allocated by a different method. Both the semi-partial results and the Shapley decomposition are used together because they give complementary information: semi-partial values show each predictor's independent contribution, whereas Shapley gives an allocation of shared effects to each independent variable and the shapely values sum to the model R^2, which is convenient for prioritization decisions.

Hence, the first step in this value analysis is calculating the standard deviation of the dependent variable. Here, the standard deviation tells us how spread out each of the individual results of the dependent variable, electronic procurement practices, are in the sample. This means it shows whether most observations cluster around the mean or whether they are dispersed. Because standardized regression coefficients express effects in units of standard deviations, the standard deviation of the dependent variable (SD_Y) is needed to convert those standardized values back into the original score scale that can be used by decision makers. The standard deviation of the dependent variable (SD_Y) was computed using SPSS and the result is shown in the table below.

Table 4-10: Descriptive statistics for the dependent variable

Descriptive Statistics			
Variable	N	Mean	Std. Deviation
Electronic Procurement Practices	149	3.1221	0.79768
Valid N (listwise)	149		

Source: Survey (2025)

After calculating the standard deviation of the dependent variable, the standardized beta coefficients that were calculated through regression analysis were converted into raw expected changes. This is because, while standardized betas describe how many standard deviations the dependent variable moves per one standard deviation change in a predictor, for the value analysis

purpose, knowing the expected change in the dependent variable (electronic procurement practices) score itself is preferred. To make the conversion the following simple equation is used: Raw change = β × SD_Y. Applying this formula with SD_Y = 0.79768, as calculated above, and the standardized betas reported in the regression results, gives the raw expected changes shown in the table below.

Table 4-11: Standardized betas and raw expected changes

Variable	Standardized Beta (β)	Raw expected change (β × SD_Y)
Top Management Support	0.360	0.2871
Staff Training	0.399	0.3182
System Integration	0.382	0.3047
High Information Quality	0.365	0.2911
Performance Measurement	0.155	0.1236

Source: Survey (2025)

To explain this further, for example, a 1-point standard deviation (SD) improvement in Staff Training is associated with an approximate 0.318-point increase in the electronic procurement practices score. Hence, this method was employed as standardized coefficients are unitless, multiplying by the standard deviation (SD) of the dependent variable produces interpretable changes in the score units the organization uses for monitoring and decision-making.

When moving to the next part of the value analysis, this step identifies how much of the dependent-variable variance each predictor uniquely explains, controlling for the others. For this, semi-partial (part) correlations were used. The semi-partial correlation between the dependent variable (Y) and each of the independent variables is the Pearson product moment coefficient correlation of the dependent variable with the residual of each independent variable after regressing each independent variable on all the other independent variables; it is done separately for each independent variable. In other words, it measures the part of each independent variable that is independent of the other variables and how that unique portion relates to dependent variable.

Here, the calculation of semi-partial correlation was done using SPSS. After getting the semi-partial correlation values, squaring these semi-partial correlation results gives sr^2, which is the exact proportion of the total variance in the dependent variable, which is uniquely attributable to the specific independent variable, given the other predictors in the model. To make the contributions comparable to the model's R^2 values, each predictor's contribution is calculated by using the equation: Contribution% = (sr^2 / R^2) × 100. This percentage shows how much of the model's explained variance (the 53.2% in total) is uniquely contributed by each predictor. Hence, below, the zero-order, partial and part correlation results are shown in the first table, followed by the squared part values and contribution percentages in the second table.

Table 4-12: Zero-order, partial and part correlation results

Variable	Zero-order	Partial	Part
Top Management Support	0.293	0.457	0.352
Staff Training	0.259	0.493	0.388
System Integration	0.402	0.476	0.371
High Information Quality	0.417	0.462	0.357
Performance Measurement	0.110	0.219	0.153

Source: Survey (2025)

From the Part column sr^2 was computed by squaring each part value, and then the Contribution% was done as a share of $R^2 = 0.532$. The results are shown in the table below:

Table 4-13: Semi-partial (part) correlations, sr^2 and Contribution% of model R^2

Predictor	Part	sr^2	Contribution percentage
Top Management Support	0.352	0.124	23.31%
Staff Training	0.388	0.151	28.38%
System Integration	0.371	0.138	25.94%
High Information Quality	0.357	0.128	24.06%
Performance Measurement	0.153	0.023	4.32%

Source: Survey (2025)

Here, it is very important to emphasize that each sr^2 value represents the increase in total R^2 if each independent variable was added last to a model already containing the other remaining independent variables. Hence, because the baseline model differs for each independent variable, the sr^2 values are not mutually exclusive and therefore do not add up to the full R^2, which means they exceed the value. This is seen in practice that, when predictors are correlated, it is common to get values which show that the sum of sr^2 values exceeds R^2, which shows repetitive explanatory contributions for each independent variable. All in all, these sr^2 values are useful because they quantify an independent variable's unique, independent contribution, while they do not divide the full model R^2 to the contribution of each of the five independent variables.

In addition to the above analysis, the sr^2 analysis is complimented with a Shapley decomposition to find the shares of each independent variable with regards to the model's explained variance (R^2 value). Shapley values provide a way to divide the total variance results (here, the model R^2) among the contributions of each independent variable. The shapely method assesses each independent variable's contribution to R^2 across every possible order in which the independent variables could be added to the model, averages those contributions, and gives the result for each independent variable. The Shapley allocations for each independent variable add up to the model R^2 and show each independent variable's absolute percentage of the total variance, which means shows it is a goof method for priority setting among these independent variables. Hence, the Shapley analysis results are shown in table below.

Table 4-14: Shapley decomposition of the model R^2 (exact)

Predictor	Shapley allocation (absolute)	Shapley % of R^2
Top Management Support	0.1045	19.65%
Staff Training	0.1079	20.29%
System Integration	0.1497	28.19%
High Information Quality	0.1515	28.48%
Performance Measurement	0.0180	3.39%
Total	**0.5317**	**100%**

Source: Survey (2025)

The Shapley results show that System Integration and High Information Quality together have the largest share of the model's explained variance (each about 28%), while Staff Training and Top Management Support consist of around one-fifth of the total variance each, and Performance Measurement has the smallest share. As these Shapley shares sum to 100% of the explained variance, they can be used directly to discuss recommendations based on the priority as per the results.

As a whole, bringing the results obtained through the two different methods together, the semi-partial results show that Staff Training has the largest individual effect as seen in it having the largest independent share of the electronic procurement practices variation. However, on the other hand, the Shapley results emphasize that System Integration and High Information Quality are the significant variables that capture the largest joint shares of the explained variance, so these are the key areas that can be prioritized along with training and leadership support. Top Management Support appears to be a strong predictor variable in both value analysis methods, while Performance Measurement, although statistically significant, contributes a smaller share and therefore could be treated with a lower priority than the other predictors of electronic procurement practices.

In conclusion, the regression explains a meaningful portion of variance in Electronic Procurement Practices ($R^2 \approx 0.532$). Translating standardized coefficients to the outcome scale shows that Staff Training and System Integration had the largest raw improvements from the five

independent variables (predictors) (approximately +0.32 and +0.30 points on the procurement score per +1 SD change, respectively). In addition to this, Combining the sr^2 and Shapley decompositions leads to a clear hierarchical priority setting, where the managers at EATI can begin with targeted training and data-quality improvements to secure early wins, then use those outcomes to justify and implement broader system-integration and governance investments that will deliver the largest sustained improvements across the institution.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Summary of findings

This study assessed the relationships between the five different specific variables of E-procurement critical success factors and e-procurement practices at the Ethiopian Agricultural Transformation Institute (EATI). While a sample size of 155 respondents was chosen to participate in this study, the analysis included the 149 respondents who completed and returned the questionnaires.

E-procurement practice was represented by fifteen questions that were divided under five different specific variables, namely: electronic requisition, electronic procurement planning, electronic supplier evaluation, electronic ordering, and electronic contract administration. Furthermore, the five E-procurement critical success factor variables included top management support, staff training, system integration, high information quality, and performance measurement, under which 21 questions were presented.

In this study's regression analysis, e-procurement critical success factor variables were regressed against E-procurement practices. The regression model, which regressed the effects of the five E-procurement success-factor variables on overall e-procurement practice, had results which explained that 53.8 percent of the variance in practice scores ($R^2 = 0.538$, Adj $R^2 = 0.522$) was attributed to the five independent variables included in this model. The F-test was again highly significant ($p < 0.01$), demonstrating that the five variables collectively contributed to the variations in practice levels. In addition, all five standardized coefficients were positive and statistically significant at $p < 0.01$.

With this regard, the results of the regression analysis show that the variables of the positive critical success factors account for more than half of the observed variation in e-procurement behavior. With these findings, the hypotheses suggested for this study were examined, and all were found to be valid, indicating that E-procurement Success Factors had a substantial impact on EATI's E-procurement practices.

In addition to these results, in-depth interviews with EATI directors supplemented the quantitative results. These directors praised the existing e-procurement system for eliminating paper-based procurements as much as possible, reducing processing times for routine purchases, and providing a trail that meets the needs of both internal finance departments and external funders. However, respondents stated that gaps in registration of needed elements, particularly for specific specialty inputs, lead to manual tendering and add additional delays in obtaining the items. These comments from the directors provided light on various factors that are negative to the system, while integration, training, and performance indicators were seen to lead to success.

Overall, the study's quantitative models quantified how critical success factors shape e-procurement practices, while interviewees demonstrated that top managers, workforce stability, capacity development, system integration, and focusing on user experience will help greatly with the E-procurement system in place in the organization.

5.2 Conclusions

Based on the regression analysis and interview data, some major conclusions about e-procurement practice at the Ethiopian Agricultural Transformation Institute can be drawn. First, e-procurement practice is a complex activity that relies on both overcoming internal challenges and improving critical success factors. The regression analysis conducted in this study demonstrates that strong top management commitment, staff training, system integration, excellent information quality, and performance measurement all improve E-procurement practice. In practice, these findings suggest that efforts to improve e-procurement must be equally focused on lowering the challenges and encouraging the success factors.

In this regard, top management support is the one of the influential variables: high top manager engagement produced significant positive coefficient. With this regard, effective e-procurement practices need clear commitment from top managers, in actions such as budget allocation, policy directions, and ensuring transparency and accountability.

Furthermore, human capital is seen as a solution. Relevant to this result is the result that showed that staff training had a positive significant coefficient. These results show that personnel retention and employees' skill development are essential for successful implementation and

improvement of the e-procurement system and practice. In addition, the technological and data dimensions of the study complement one other. System integration proved to be a positive influencer of E-procurement practices, demonstrating that having technology alone is insufficient until it is effectively integrated with the current ERP systems in place in the organization. In addition, the findings also showed that good information quality had a positive impact on e-procurement practices, as it can improve the e-procurement practices of the organization.

When it comes to the behavioral aspects related to the organization, performance assessment was seen as a positive influence, which shows that the organization must ensure transparency in the organization and provide avenues for employees to change and get themselves familiar with the e-procurement system, while their performances have to be regularly monitored.

In addition, continuous scheduled training and on the job trainings help in providing solutions to these problems, where these activities must be continuous to ensure the implementation of the e-procurement system by everyone in the organization. In addition, as highlighted in the interviews with the Directors, problems with the system and also other technology infrastructure-related issues can be hindrances to the success of the e-procurement system within the organization and hence need to be addressed. Moreover, as per the results of the interviews, it was seen that the success of the system also depends on the presence of company policies and Standard operating procedures (SOPs) that ensure uniformity of activities within the different departments of the organization and enhance accountability and transparency.

In conclusion, this study shows that the e-procurement process in the Ethiopian Agricultural Transformation Institute is dependent on various aspects of top management support, human capital, technology infrastructure, data quality, change acceptance, and performance assessment, among other things. Hence, the e-procurement system can only reach full implementation and practice by reducing the challenges it faces, while enhancing its critical success factors at the same time, where each point raised in this study needs to be fully addressed.

5.3 Recommendations

Based on the results obtained in this study, the following recommendations were proposed to better the e-procurement practices at the Ethiopian Agricultural Transformation Institute.

First, to ensure sustained practice of the e-procurement system at the organization, top managers must play an active role in leading the e-procurement practice in the entire organization. They should conduct regular system performance assessments, assign required resources, and establish responsibility for each aspect of the system within the employees and amongst themselves. In addition, the organization has to invest in both managers and the remaining staff by ensuring continuous training and even on-the-job training to improve the implementation of the system and overcome resistance to change amongst all the employees of the organization.

In addition to this, the human capital problems must be addressed through capacity development. This involves attaching incentives to the successful implementation of the system by the employees, while also providing continuous training and hands-on help by seniors which are familiar with the system, and also regularly conducting performance reviews, which will shorten the time needed to implement the system in the organization fully.

Moreover, investments in technology infrastructure and system integration are critical. Related to this, high information quality has been shown to be essential to ensure the best performance of the system, hence, a team comprised of procurement, finance, and IT staff, amongst other departments, can oversee data quality throughout the organization and implement changes required to ensure the data quality.

Furthermore, methods such as continuous training, on-the-job follow-up and refresher training have to be conducted to get people used to the e-procurement system, while regularly monitoring the performance of the employees to make sure they are aligned in the implementation of the system. Related to this, to continue progress of the e-procurement system in the organization, performance assessment must be integrated into the activities associated with the e-procurement system, where e-procurement KPIs must be created, met by employees, and measured to identify weak areas and make adjustments.

Last but not least, the e-procurement platform must be better connected with current existing systems in order to avoid manual circumvention by employees or even departments. In addition, improving usability by employees will increase participation and reduce delays. Finally, by aligning the e-procurement system to broader organizational objectives and goals, the institution can ensure that its e-procurement system will enhance its operations.

5.4 Suggestion for future studies

More research can be done on the complex ways that different organizational cultures and leadership styles influence the practice and success of e-procurement systems. The study concentrated on e-procurement practices, and critical success factors at EATI's headquarters. So, Comparative studies that look at e-procurement practices across different branches of EATI, range of industries, such as healthcare, education, and construction, as well as different regions with unique socioeconomic contexts, would offer insightful viewpoints and increase the findings' applicability and relevance.

References

1. Abdulraheem, A. S., Abdulla, A. I., & Mohammed, S. M. (2020). Enterprise resource planningAsumba, G. (2010) B2B progress in Italian organization, A multiple case study. Human Resources Procurement Journal, 21(3), pp. 275- 292.
2. Addo, S.K. (2019). Challenges of E Procurement Adoption in the Ghana Public Sector: A Survey of the Ministry of Finance, Scholarly Journal of Arts & Humanities, 7(1), 44–80.
3. African Development Bank (AfDB). (2019). African Economic Outlook 2019, Abidjan: African Development Bank.
4. AlMuhayfith, S., & Shaiti, H. (2020). The impact of enterprise resource planning on business performance: With the discussion on its relationship with open innovation. Journal of Open Innovation: Technology, Market, and Complexity, 6(3), 87.
5. Alonazi M. (2019) MGAUM: a new framework for the mobile government service adoption in Saudi Arabia. University of Sussex.
6. Alfarra, W. A. (2009). Analysing Questionnaires Data Using SPSS. Programs and Foreign Affairs Department, World Assembly of Muslim Youth.
7. Altayyar, A. & Beaumont Kerridge, J. (2016). External Factors Affecting the Adoption of E Procurement in Saudi Arabian's SMEs, Procedia – Social and Behavioral Sciences, 229, pp. 363–375. doi: 10.1016/j.sbspro.2016.07.147
8. Ameyaw, C., Mensah, S. & Osei Tutu, E. (2011). Public procurement in Ghana: The implementation challenges to the Public Procurement Act 2003 (Act 663), International Journal of Construction Supply Chain Management, 1(2), 55–63.
9. Andraski, J.C. and Novack, R.A. (1996). Marketing logistics value: managing the 5P's, Journal Logistics, 17 (1), 23-34.
10. Antwiadjei, L. (2021). Evolution of Business Organizations: An Analysis of Robotic Process Automation. Eduzone: International Peer Reviewed/Refereed Multidisciplinary Journal, 10(2), 101-105.
11. Awati, R., & Pratt, M. K. (2021). What is e-procurement and how does it work? SearchCIO.
12. Bailey W. R. (2005). Human Performance Engineering: Designing High Quality Performance, Professional User

13. Barsemoi1, H. Mwangagi1, P. and Odero, B.(2014), Factors Influencing Procurement Performance in Private Sector in Kenya, International Journal of Innovation and Applied Studies, ISSN 2028-9324 Vol. 9 No. 2 Nov. 2014, pp. 632-641,Available from http://www.ijias.issr-journals.org/ Accessed (20th September, 2015).
14. Beth, S., Burt, D.N., Copacino, W., Gopal, Ch., Lee, H.L., Lynch, R.P., Morris S., 2003, Supply Chain Challenges: Building Relationships, The Harvard Business Review, July.
15. Birks, C., Bond, S. & Radford, M. (2001). Guide to e-Procurement in the Public Sector: Cutting through the Hype. London, UK: Office of Government Commerce, HMSO.
16. Black, P., Rong DU., Juan G.N (2005) Security and Legal Issues in E-tendering
17. Cao, F., & Wang, C. (2022). An Empirical Study of Determinants of Pay-for-Performance in PPP Procurement. Sustainability (Switzerland), 14(19). https://doi.org/10.3390/su141912738
18. Chen, Y., Bretschneider, S., Stritch, J.M., Darnall, N. & Hsueh, L. (2021). E procurement system adoption in local governments: The role of procurement complexity and organizational structure, Public Management Review, 24(6), 903–925.
19. Connolly, C. and P. Ravindra (2006). First UN Convention on eCommerce finalised. Computer Law &. Security Report 22: 31 – 38.
20. Croom, S. & Brandon-Jones, A. (2004). E-Procurement: Key issues in e-Procurement adoption and operation in the public sector, 13thInternational Purchasing & Supply Education & Research Association (IPSERA) Conference, April 4-7, Catania, Italy.
21. Cut Costs, Bump up Efficiency with E-Purchasing."(1999).The Business Times, 1 November, 2SS9.
22. Department of Finance (DOF) (2001). Strategy for the Implementation of e-Procurement in the Irish Public Sector. Dublin, Ireland:
23. Dorasamy, N. (2012). Conditions determining the success of public E-procurement, in Public Sector Transformation Processes and Internet Public Procurement. IGI Global, pp. 185–209.
24. ECOM Group (2002, February). e-Procurement in the UK Public Sector: A Guide to Developments and Best Practices (A CIPFA e Government Forum Report). London, UK: Author.

25. Feven, S. (2019). Challenges And Effect Of Implementing Enterprise Resource Planning (ERP) On Organizational Performance (A Case Study At Ethiopian Agricultural Transformation Agency).
26. Gardenal, F., "A model to measure e Procurement impacts on organizational performance". Journal of Public Procurement, Vol 13, No. 2, p. 215, 2013.
27. Gattorna, J., 2006, Living Supply Chains, Prentice Hall, London
28. Gunasekaran, A., & Ngai, E. W. (2008). Adoption of e-procurement in Hong Kong: an empirical research. International Journal of Production Economics, 113(1), 159- 175.
29. Heng Li, Cao, J.N., Daniel, C., & Miroslaw, S. (2002) A Framework for Developing A Unified B2B E-trading Construction Marketplace. Journal of Automation in Construction, Vol.12, pg. 5.
30. Idrees, A. M. (2015). Towards an automated evaluation approach for e-procurement,in 2015 13th International Conference on ICT and Knowledge Engineering (ICT & Knowledge Engineering 2015). IEEE.
31. Interfaces For Computer Products and Systems (5th ed) Prentice Hall, New York
32. K, kibet. The critical success factors and challenges in e-procurement adoption among large scale manufacturing firms in nairobi, kenya.
33. KPMG (2001). University of California Office of the President System- Wide E-Procurement Assessment and Strategy Recommendation. Berkely, CA: KPMG Consulting.
34. Kraljic, P., (1983) Purchasing must become supply management. Harvard Business Review 61 (5), 109–117.
35. Laffont,Jean-Jacques; Tirole,Jean (1993) A Theory of Incentivesin Procurement and Regulation. MIT Press. p. 1. ISBN 9780262121743. tirole laffont.
36. Lambert, D.M. and Cooper, M.C. (2000) Issues in Supply Chain Management. Industrial Marketing Management, 29, 65-83. http://dx.doi.org/10.1016/S0019-8501(99)00113-3
37. Madzimure, J., Mafini, C. and Dhurup, M. (2020). E-procurement, supplier integration and supply chain performance in small and medium enterprises in South Africa, South African journal of business management, 51(1). doi: 10.4102/sajbm.v51i1.1838.

38. Madzimure, J., Mafini, C. and Dhurup, M. (2020). E-procurement, supplier integration and supply chain performance in small and medium enterprises in South Africa, South African journal of business management, 51(1). doi: 10.4102/sajbm.v51i1.1838.
39. Marei, A., Daoud, L., Ibrahim, M. & Al Jabaly, S.M. (2020) Moderating role of top management support in electronic procurement usage of Jordanian firms, International Journal of Business and Public Administration, 17(2), 1–23.
40. Martie (2023). A complete guide to electronic procurement system - ProcureDesk, ProcureDesk. Available at: https://www.procuredesk.com/electronic-procurement-system/.
41. Ministry of Innovation and Technology, Ethiopia. (2019). Digital Ethiopia 2025: Digital Government Strategy, Addis Ababa: MoIT.
42. Mohamud, I. H., Kafi, A., Shahron, S. A., & Zainuddin, N. (2023). The Role of Warehouse Layout and Operations in Warehouse Efficiency : A Literature Review. Journal Européen Des Systèmes Automatisés, 56(1), 61–68. https://doi.org/10.18280/jesa.560109
43. Monczka, R.M., Handfield, R.B., Giunipero, L.C. & Patterson, J.L. (2016). Purchasing and Supply Chain Management. 6th edn. Boston: Cengage Learning.
44. Mohungoo, I., Brown, I.T. & Kabanda, S. (2020). A Systematic Review of Implementation Challenges in Public E Procurement, in Advanced Information Systems Engineering Workshops, Springer, pp 39–46.
45. Muguro, G. (2014). factors affecting computerization of procurement functions in the service industry in Kenya. A case study of CIC insurance group Ltd, Strategic Journal of Business and Change Management, Vol. 1 No. 2
46. Naseebullah, L., Basri, S., Dominic, P.D.D. and Jehangir, M. (2012). An empirical investigation of organisational e-readiness impact on e-procurement implementation, International Journal of Logistics Systems and Management, 12(4), p. 412. Available at: https://doi.org/10.1504/ijlsm.2012.048367.
47. Nawi, M. N. M., Deraman, R., Bamgbade, J.A., Zulhumadi, F. and Riazi, S.R.M. (2017). E procurement in Malaysian construction industry: Benefits and challenges in implementation, International Journal of Supply Chain Management, 6(1), pp. 209–213.

48. Ngatman, N., Alderei, H. and Musa, H. (2020). The Challenges faced by Public Sector Governance in implementing e-Procurement System: A Case Study of Education Department of Malacca, Semanticscholar.org. Available at: https://www.semanticscholar.org/paper/The Challenges-faced-by-Public-Sector-Governance-in-Ngatman Alderei/6fe293ff57b7c1f19f7d26f4382df1532fda6897.
49. Office of Government Commerce (OGC) (2002). A Guide to e-Procurement for the Public Sector. London: OGC.
50. Otundo Richard, M. (2021). Automating procurement (E-procurement) and its benefits during the COVID-19 pandemic, SSRN Electronic Journal. doi: 10.2139/ssrn.3870248.
51. Panayiotou, N.A., Gayialis, S.P. & Tatsiopoulos, I.P. (2015) E procurement in the European Union: How close is the reality to the policy?, Government Information Quarterly, 32(3), 294–301. doi: 10.1016/j.giq.2015.05.003
52. Panda, Prabir and Sahu, G. P., E-Procurement Implementation: Critical Analysis of Success Factors' Impact on Project Outcome (January 2, 2012).
53. Pochynok, N., Muravskyi, V. and Farion, V. (2021). Implementation of electronic communications in accounting of public procurement, Ssrn.com. Available at: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3911032.
54. Prasetyo, Ari. "Critical Success Factors of Electronic Procurement Implementation in the Ministry of National Development Planning/Bappenas Republic of Indonesia." *Indonesian Journal of Development Planning*, vol. 3, no. 1, 29 Apr. 2019, pp. 122-142.
55. Quinnox, (2012).E - Procurement the Future of Supply Chain. Retrieved on April 2, 2012 from TechRepublic.
56. Rahul A. (2023) E-procurement (supplier exchange). https://www.techtarget. com/searchcio/definition/eprocurement.
57. Saastamoinen, J., Tammi, T. and Reijonen, H. (2016). E-procurement and SME involvement in public procurement of innovations: An exploratory study.
58. Salifu, Z., Nangpiire, C., Dawdi, A.-A. and Yussif, F. (2022). Assessing the extent of electronic procurement adoption challenges in the public sector of Ghana. Research Square (Research Square) [Preprint]. Available at: https://doi.org/10.21203/rs.3.rs-2356116/v1.

59. Schoenherr, T. and Tummala, V. M. R. (2007). Electronic procurement: a structured literature review and directions for future research, International journal of procurement management, 1(1/2), p. 8. doi: 10.1504/ijpm.2007.015353.
60. Shatat, A., & Udin, Z. (2012). The relationship between ERP system and supply chain management performance in Malaysian manufacturing companies. Journal of Enterprise Information Management, 25(6), 576–604.
61. Shiferaw Mitiku-Tebeka & Yessuf, A., 2019**.** Challenges and critical success factors for e-procurement adoption in Ethiopia. *Russian Journal of Agricultural and Socio-Economic Sciences (RJOAS)*, 2(86), pp.94–102
62. Smeds, M. (2010). Change management success factors in ERP implementation.
63. Stenning & Associates Pty Ltd (S&A) (2003). Final Report: Evaluation and Review of the e-Procurement Pilot Project, Version 1.2, Hobart, Australia.
64. Teo, T.S., Lin, S. and Lai, K.H. (2009). Adopters and non-adopters of e-procurement in Singapore: An empirical study. Omega, 37(5), 972-987.
65. Teo, T.S.H., Lin, S., & Lai, K. (2009) Adopters and non-adopters of e-procurement in Singapore: An empirical study. The International Journal of Management Science, 37, 972-987 Thomson and Singh, (2001) Measuring E-Procurement Performance in the Austra
66. Thai, K.V. (2007). International Handbook of Public Procurement. Boca Raton: CRC Press.
67. United Nations Department of Economic and Social Affairs (UNDESA). (2022). United Nations E-Government Survey. New York: UNDESA.
68. Vaidya, K., Sajeev A.S.M. and Callender, G. (2004) E-Procurement Initiatives in the Public Sector: An Investigation into the Critical Success, 13th Annual International Purchasing & Supply Education & Research Association (IPSERA) Conference, April 4-7, Catania, Italy.
69. Vaidya, K., Sajeev, A. S. M. and Callender, G. (2006). Critical Factors that Influence e Procurement Implementation Success in the Public Sector, Journal of Public Procurement, 6(3), pp. 70–99. DOI: 10.1108/jopp-06-01-02-2006-b004.
70. Wright, D. R. (2023). User Training and Change Management Synergy: Keys to ERP Success in SMEs. Frontiers in Management Science, 2(6), 38-46.

71. Youssef Z. and Mohamed O. (2012). ERP Projects: Key Success Factors and Risk of Failure A Proposed Model of Governance of Enterprise Resource Planning. International Journal of Computer Applications, Volume 46– No.8
72. Yu, C.S. (2005). Causes influencing the effectiveness of the post-implementation ERP system', Industrial Management & Data Systems, Vol. 105, No. 1, pp.115–132.

Annex

Appendix I: Research Questionnaire

ADDIS ABABA UNIVERSITY

SCHOOL OF COMMERCE

My name is Yodit Getachew, and I am currently pursuing a Master's degree in Logistics and Supply Chain Management at Addis Ababa University, School of Commerce. In partial fulfillment of the requirements for this degree, I am conducting a thesis on **"ELECTRONIC PROCUREMENT PRACTICES, CHALLENGES, AND CRITICAL SUCCESS FACTORS: ETHIOPIAN AGRICULTURAL TRANSFORMATION INSTITUTE".**

This questionnaire is designed solely for academic purposes to gather insights from professionals like you on e-procurement practices at EATI. Your responses will remain strictly confidential and will be used exclusively for this study.

I sincerely appreciate your time and kindly request you to take a few minutes to complete this questionnaire. Thank you for your valuable input and consideration.

Sincerely

Yodit Getachew

Tele: +251910427914

Email: yoditgetachew15@gmail.com

Section A: Background Information

1. Gender

Male ☐ Female ☐

2. Age

18-30 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 ☐ Finance ☐ Information Technology ☐

Strategic Affairs ☐ Logistics & Admin ☐ Sub- grant ☐

Human Resources ☐

6. What is your position at EATI?

Director ☐ Senior Manager ☐ Manager ☐

Senior Officer ☐ Officer ☐ Assistant ☐

Section B: E-Procurement Practices at EATI

Please rate the following statements regarding the E-Procurement Practices using a 1 to 5 Likert Scale:

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

No	Statement	Scale				
		1	2	3	4	5
Electronic Requisition						
1	The e-procurement system allows users to electronically submit purchase requisitions.	☐	☐	☐	☐	☐
2	The e-procurement system captures all necessary details (item description, quantity, cost, justification).	☐	☐	☐	☐	☐
3	The requisition process minimizes unnecessary or duplicate purchase requests.	☐	☐	☐	☐	☐
Electronic Procurement Planning						
4	Users can submit their annual procurement needs electronically.	☐	☐	☐	☐	☐
5	Top management actively supports the implementation of electronic procurement planning.	☐	☐	☐	☐	☐
6	The e-procurement system helps in setting realistic timelines for purchases.	☐	☐	☐	☐	☐
Electronic Supplier Evaluation						
7	Bid evaluation is conducted entirely electronically within the e-procurement system.	☐	☐	☐	☐	☐
8	The e-procurement system electronically evaluates bids against set criteria.	☐	☐	☐	☐	☐
9	The e-procurement system is capable of ranking bid results.	☐	☐	☐	☐	☐

Electronic Ordering						
10	The e-procurement system allows for sending purchase orders electronically to suppliers.	☐	☐	☐	☐	☐
11	The e-procurement system facilitates online approval of purchase orders.	☐	☐	☐	☐	☐
12	Purchase order records are electronically stored and retrievable.	☐	☐	☐	☐	☐
Electronic Contract Management						
13	The e-procurement system allows for recording and modifying contracts electronically.	☐	☐	☐	☐	☐
14	The e-procurement system allows for tracking and monitoring supplier performance.	☐	☐	☐	☐	☐
15	The e-procurement system sends automated alerts before key deadlines, such as contract expiration.	☐	☐	☐	☐	☐

Section C: Critical Success Factors of E-Procurement Practices

Please rate your level of agreement with the following statements regarding **Critical Success Factors of E-Procurement Practices** in your organization. Use the 1 to 5 Likert scale below: Where 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree

No	Statement	Scale				
		1	2	3	4	5
Top Management Support						
1	Availability of Top management support positively contributes to successful implementation of the e-procurement system.	☐	☐	☐	☐	☐
2	Possession of sufficient resources (e.g., budget, personnel, and technology) by the Top management contributes to successful operation and development of e-procurement.	☐	☐	☐	☐	☐
3	Top management communicates the importance of e-procurement and its benefits clearly to all employees.	☐	☐	☐	☐	☐
4	Top management prioritizes and values employee feedback regarding the e-procurement system, to address and made improvements.	☐	☐	☐	☐	☐
Staff Training						
5	Employees received adequate training on use of the e-procurement system impacts the success of e-procurement practices.	☐	☐	☐	☐	☐
6	The training provided on e-procurement was relevant to my job responsibilities and tasks.	☐	☐	☐	☐	☐
7	The e-procurement training materials, including guides and presentations, were straightforward and easy to understand, which positively impacted the success of the e-procurement process	☐	☐	☐	☐	☐

8	Ongoing technical support for staff regarding e-procurement system significantly impacts the success of e-procurement practices.	☐	☐	☐	☐	☐
System Integration						
9	The selected e-procurement software is user-friendly, meets organizational needs, and positively impacts the success of e-procurement practices.	☐	☐	☐	☐	☐
10	The e-procurement system is well integrated with the overall business strategy, significantly enhancing e-procurement practice success.	☐	☐	☐	☐	☐
11	The quality and consistency of data transferred between systems have been excellent since integration, which positively impacts e-procurement practice.	☐	☐	☐	☐	☐
12	The e-procurement system effectively integrates with other enterprise systems such as finance, inventory, and supplier management, facilitating fast decision-making and enhancing the overall e-procurement practices.	☐	☐	☐	☐	☐
High Information Quality						
13	The accessing of consistent and accurate information positively impacts for successful procurement practices.	☐	☐	☐	☐	☐
14	The information I rely on is provided in a timely manner, allowing me to make decisions or take action when needed.	☐	☐	☐	☐	☐
15	The information I receive is complete and provides all the necessary details for my tasks and enhances e-procurement practices.	☐	☐	☐	☐	☐
16	The information is presented in a clear and understandable format improves e-procurement practices.	☐	☐	☐	☐	☐
17	The e-procurement system supplies essential information for e-procurement analysis, positively impacting procurement practice.	☐	☐	☐	☐	☐

Performance Measurement						
18	The e-procurement system reliably captures real-time performance data for effective monitoring e-procurement practice.	☐	☐	☐	☐	☐
19	The e-procurement system includes clearly defined Key Performance Indicators (KPIs) that align with our procurement goals improves e-procurement practice.	☐	☐	☐	☐	☐
20	Our organization actively evaluates the impact of the e-procurement system on procurement processes.	☐	☐	☐	☐	☐
21	E-procurement performance measurement results drive continuous improvement in the e- procurement system and positively impacts e procurement practice outcomes.	☐	☐	☐	☐	☐

Appendix II: Interview Questions

1. Can you describe your overall experience with the current e-procurement management practices at EATI, and how well they align with organizational goals?
2. What are the primary challenges you face in implementing e-procurement at EATI, and how do you address them?
3. What are the critical successes factors ensuring the success of the e-procurement system at EATI?