



DEBRE BERHAN UNIVERSITY

COLLEGE OF BUSINESS AND ECONOMICS

DEPARTMENT OF MANAGEMENT

**Effects of Enterprise Resource Planning Implementation for Web Based Procurement
on Organizational Performance in Ethio Telecom Central North Region.**

**A Thesis Submitted to Department of Management for the Partial Fulfillment of the
Requirements for the Award of Degree in Masters of Business Administration (MBA).**

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June, 2024

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DECLARATION

I, declare that this thesis is my original work and all sources of materials used for the thesis has been genuinely acknowledged. This thesis has submitted in partial fulfillment of the requirements for MBA degree of Debre Berhan University. The work has not submitted the thesis to any other institution anywhere for the award of any academic degree, diploma or certificate.

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CERTIFICATION

This is to certify that the thesis entitled “Effects of Enterprise Resource Planning Implementation for Web Based Procurement on Organizational Performance in Ethio Telecom.” submitted to the Department of Management, College of Business and Economics, Debre Berhan University, in partial fulfillment of the requirements for the Degree of Master of Business Administration is a record of original research work done by Rahel Zewdu (DBU1400358). The Thesis complies with the regulations of the University and meets the accepted standards.

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ACKNOWLEDGEMENT

Above all, I am thankful to God and his mother St. Mary for the wisdom and perseverance that he has granted upon me during this research project and indeed throughout my life. Next, I would like to extend my rooted gratitude to my advisor Professor Guna Sankar, for his guidance, suggestions and constructive comments in all phase of the study.

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LIST OF ABBREVIATIONS AND ACRONYMS

ERP: Enterprise Resource Planning

E-business: Electronic Business

SMEs: Small to Medium Enterprises

APS: Advanced Planning and Scheduling

CRM: Customer Relations Management

SCM: Supply Chain Management

IC: Inventory Control

MRP: Material Requirement Planning

MRP II: Manufacturing Resource Planning

B2B: Business to Business

B2C: Business to Customer

BPR: Business Process Reengineering

ITU: International Telecommunications Union

TOM: Enhanced Telecom Operating Map

PCMM: People Capability Maturity Model

I-Procurement: Internet Procurement

Abstract

An Enterprise Resource Planning system is a corporate wide information system which is used to integrate the business processes and resources of a company. When the business processes of a company increases and becomes complex, it is difficult to continue with the traditional decentralized information systems for timely decision making and other activities. Therefore, main objective of this study is examine the effect of enterprise resource planning (ERP) system implementation for web-based procurement on organizational performance in Ethio Telecom. The research followed both descriptive and explanatory research design, as it explains the relationship between dependent variable and independent variables used in the study. The target population for this study consists of employees who are working on ERP system in different departments at Ethio Telecom. One hundred ninety (190) respondents were targeted for the study and hence the same number of questionnaires was distributed. However, out of this number, 128 questionnaires were received. The remaining 62 questionnaires were not returned back. Both descriptive and inferential statistics were used to analyses the data using SPSS version 20. Correlation was used to test the strength and direction of the relationship between the variables. Regression analysis was used to test the effect of the independent variables (ERP system) on dependent variable (organizational performance) and to test the hypotheses and the result had shown inventory management, information system, internal process, decision making, organizational business value and employee management positive and strong relationship with organizational performance. The researcher recommends Ethio Telecom Gold to build on the ERP system practices (internal process, inventory management, and decision making, information system, organizational business value and employee management). Finally, other researchers should be Effective communication with employees is important to build awareness about the system and its effect on organization performance. Awareness was created to employees about the objectives of implementing the system and its impact on performance through mail, discussion, meeting and training.

Keywords: *ERP System, Web-Based Procurement, I Procurement, Organizational Performance, Ethio Telecom, variables.*

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

In contemporary business environment, Information Technology (IT) has become an important part of any one's daily activity. IT and Information Systems (IS) changed the business atmosphere. Production and services grew, quality is improved, and at the same time, competition between companies is increased. In this competitive situation, organizations can survive only if they improve quality and minimize costs in their day-to-day business activities through diversifying their products and services, and provide more reliable delivery service in better ways in comparison to their competitors. Enterprise Resource Planning (ERP) systems have the ability to automate and integrate business processes, share data and practices, and produce access real-time information across the organization as well as the end users (Janice Yick, 2011).

Since the early 1990s, the reliance and dependence on ERP systems have been growing substantially, and the purchase and implementation of ERP systems continues to be one of the fastest growing segments of the IT sector. Where it is a best tool to business solutions that support integration of internal business process within the enterprise, connecting a number of modules to one centralized database, modules like: sales; human resources; finance; logistics; manufacturing; order fulfillment; and supplier management (Lou & Strong, 2004).

ERP system allows companies to integrate different departmental information and further it attempts to integrate the suppliers and customers with the manufacturing environment of the organization as well. Traditionally, organizations were generally employ application systems, which treat each transaction separately, and they built around the strong boundaries of specific functions that a specific application meant to cater for. ERP stops treating these transactions separately as standalone activities and considers them a part of interlinked processes that make up the business. Beyond its pure software package, ERP embodies established ways of doing business. Studies have illustrated that an ERP system is not just pure software package to tailor to an organization but an organizational infrastructure that affects how people work "imposes its own logic on a company's strategy, organization, and culture" Davenport (1998). Hence, the researcher examined the effect of such a valuable software package as well as organizational infrastructure, ERP system on organizational performance (Gupta A., 2000).

Organizations expect that ERP will create competitive advantages. In assuming that ERP create advantages, it is necessary to know what effects it has on an organizational performance. A lot of research conducted into implementation issues and success and fail factors of ERP. ERP systems support business processes and can be used as a tool to help to realize other goals. It is interesting to see what the impact of ERP systems is on the organization, or what relations exist between ERP and management control. One specific aspect of management control is the area of Performance Management. Talking about managing performance, the next question that presents itself is: what exactly is meant by performance and how can performance be measured. ERP systems store all process data in a single database, so we could assume that ERP systems offer opportunities for better organizational performance.

The implementation of an ERP system in an organization is a very complex project. The implementation of such systems is difficult and involves a high cost, as well as considerable time and resources. Organizations contemplating such a project must be aware of the necessary commitments (Almahdi, 2015). This issue was also discussed by Rahnavarda & Bozorgkhou (2014), that ERP implementation normally costs significantly and it is time consuming since it needs fundamental changes in processes, which creates tensions in most parts of the organizations and the outcome could be undesirable. In order to integrate the resource management and research excellence, ERP can contribute as one of the most advanced technology. However, implementing an ERP system is one of the main challenges in recent decades, so that organizations consider the investment in ERP systems as a significant strategy, which creates competitive advantage for many organizations. In addition to the tools being used, the most important success factor for any big company is its culture and organizational structure if the company's structure is not well organized; it might be the root cause for the failures of the used ERP tool. As in the case of small companies, ERP is not mandatory since its cost is greater than the benefits. The primary reason why businesses adopt ERP is a way of streamlining business operations, enhancing job performance, and generating value by improving the integration of best practice job processes, management functions, real-time reporting, and knowledge analysis capabilities. Most businesses probably face business problems because they invest a significant amount of money in ERP applications, but they do not reap any benefits at the end of the day and are left with a huge ERP investment that they did not get anything out (Elmonem et al., 2016).

Enterprise Resource Planning (ERP) systems have been designed to integrate data and optimize its distribution between functions and services in order to improve operational performance (Shen et al., 2016).

The result confirmed that ERPs are important resources for creating the ability to control commercial activities, creating a competitive advantage for the company in combination with the company's existing competitive edges (Alomari et al., 2018). Integration is carried out by sharing a common database of all data processing functions and applications with the company (Mphumi et al., 2017).

A software solution integrates business functions and data into a single system shared within a company. While ERP originated from manufacturing and production planning systems used in the manufacturing industry, ERP expanded its scope in the 1990's to other "back-office" functions such as human resources, finance and production planning (Swartz & Orgill, 2001). Moreover, in recent years ERP has incorporated other business extensions such as supply chain management and customer relationship management to become more competitive. An ERP system is software that aims to integrate and deliver answers to many company operations, such as finance, human resources, manufacturing, materials management, and sales, into a single database system (Davenport, 2000).

ERP offers businesses a different and much more useful capability, bringing all the different processes together to create one integrated system. ERP can comprise and combine different modules to meet a company's specific needs, and indeed to serve different industries. Generally, ERP has the following values to organizations; Centralized control, better management, enhanced customer service, increased sales, mobility, Long-term planning, Standardization, Regulatory compliance and logistics management. Organizational performance is a method of measuring the success of the organization to ensure that it achieves its goals. Organizational performance measurement plays an important role in organizational growth. Through measuring performance, a firm can identify and track progress against organizational goals, seek opportunities for improvement, and compare performance against both internal and external standards, and formulate strategic activities through reviewing its performance (Hwang, 2011). Lee, Hong, and Katerattanakul (2004) divided organizational performance into two categories financial performance and non-financial performance.

Empirical studies from a survey of companies that have used enterprise resource planning (ERP) systems show that Enterprise resource planning (ERP) ERP has a massive impact on organizational performance, such as recording and sharing real-time information, reduces inventory shortages, increasing operational efficiency, enables employee performance monitoring, improves the quality of managerial decisions ,integrates and coordinates resources, guides and controls actions of middle managers and employees to

ensure plan adherence, increases knowledge and skill transfer between employees, and improves customer relation management. (Cakici O. E. et al., 2010; Cachon & Fisher, 2000; Simoes, Gomes, & Yasin, 2001; Zollo & Winter, 2002; Zeng Y. et al., 2012; Al-Tarawneh, 2012).

An ERP system helps a company to handle its operations holistically in order to stay competitive in today's business climate (Beheshti & Beheshti, 2010). Therefore, operational efficiency should be a key outcome when a business chooses to adopt a technical program at its place of operation. Research on operational efficiency effects shows that, in most situations, end user performance declines rapidly after the technology is implemented (Rouhani & Mehri, 2018). However, until individual employees within these organizations use IT properly and effectively to execute their organizational activities, these advantages will not be realized (Sun & Bhattachar, 2011). Enterprise resource planning (ERP) system in the past adopted in giant reengineering of business processes and the advantage of innovative software to keep up those new processes (Robey et al., 2012). By 2013, an estimated 30,000 organizations all over the world planned to apply the system (Jalal, 2011). By then, it noted that many companies and even some small-sized ones had begun to hold the concept (Jacobs & Bendoly, 2013).

In Africa, countries such as South Africa, Kenya, Nigeria, Ghana, Egypt and Tunisia have witnessed an increase in the usage of the ERP systems by their firms. South Africa leads Africa in terms of companies that have applied ERP systems to facilitate organizational processes (Mukwasi, 2014). Other countries such as Egypt, Kenya, Nigeria and Ghana have also proved a four significant increase in the number of organizations adopting the use of ERP systems.

The introduction of telecommunications services in Ethiopia dates back to 1894 and the Ethiopian Telecommunications Corporation is the oldest public telecommunications operator in Africa. The Imperial Board of Telecommunications of Ethiopia, which became the Ethiopian Telecommunications Authority in 1981, was placed in charge of both the operation and regulation of telecommunication services in the wake of the market reforms. In 1996, the Government established a separate regulatory body, the Ethiopian Telecommunication Agency (ETA) by Proclamation 49/1996, and during the same year, by regulation 10/1996, it was changed to Ethiopian Telecommunications Corporation (ETC). Again by; France telecom contract management it was radically transformed to ethio telecom in December 2, 2010. The contract was aimed at uplifting the service of ethio telecom to international standards and to facilitate technology transfer for domestic professionals. France telecom brought major international management practice. ERP is

among transformational change brought by this contract management. Currently ethio telecom launched different ERP modules throughout the organizational unit of the company; applied different Finance modules, Supply Chain, Human Resource Management, Project management and others as well (<http://www.ethio telecom.et> and different internal company publications). A number of companies in Ethiopia like: Commercial Bank of Ethiopia (CBE), MIDROC Gold, Ethiopian electrical power corporation (EEPCO), Ethiopian insurance Corporation, Addis Ababa water and sewerage authority and Ethiopian railways corporation (ERC) adopted enterprise resource planning (ERP) system and facilitate their operation and to boost up their performance towards their goal.

Currently, Ethio-telecom is a crucial national organization investing huge amount of money in provide & expand telecom services and to adopt ERP System for operational excellence. To realize its Growth and Transformation Plan regarding telecom services depends on this sole telecom services provider in Ethiopia. The corporation envisions being excellent telecommunication service provider. As it goes in its mission statement, Ethio-Telecom has a mission to connect every Ethiopian through information communication technology, provide telecommunication services and products that enhance the development of the nation and build reputable known its customers' consideration.

The previous procurement methods at Ethio-telecom lack the efficiency required for a rapidly evolving telecommunications landscape. The absence of a streamlined ERP system may lead to delays, inaccuracies, and increased costs in procurement activities, potentially hindering the organization's ability to meet market demands. As a result, it was very challenging to continue with the existing management style and technology because of the dynamic environment of the sector. Therefore, the government planned a reengineering project which undertaken from 2007 to 2010 and that was mainly designed to introduce excellent and excellent business processes including the implementation of Enterprise Resource Planning system and to bring in latest telecommunication technologies in to the organization. Since December 2010, based on the newly introduced organizational objective and structure, an IT solution named Enterprise Resource Planning has introduced in a manner that fits the current work arrangements and expectations.

As clearly discuss above Implementation of ERP system in Ethio Telecom is not about vanilla implementation rather it is about customizing and applying the tool in line with the nature of the structure of the company, policies and procedures, internal processes and other vital parameters. Therefore, it is very

difficult to say the fiasco of implementation has existed because of the nature of the country, nature of the company, policies and procedures or other things unless a detailed investigation done.

Researchers conducted on ERP system implementation issues and success and failure factors in certain sectors globally and in the Ethiopian context. These methods might not show the extent of impact or effect. Therefore, it requires advanced research methodology, which shows the real/extent of impact or effect of adopting ERP in an organizational performance. Because the telecom industry is dependent on modern information Technology (IT) and Information System (IS), it invests a huge amount of money for implementing ERP systems and providing service to the publics and is the role player in supporting the rapid growth and development of the country's economy. Furthermore, conducting a study on the procurement module of ERP implementation on organizational performance on different organizations can give a holistic (all rounded) picture on the ERP implementation for web-based procurement on organizational performance of the telecom industry. Although some researchers carried out in different problem areas, the researcher could not find a research done in this specific module of application area (a study on the ERP implementation for web-based procurement on organizational performance of Ethio Telecom). Thus, clear understanding on the significance of ERP system implementation is critical as organizations invest resources for implementation. As stated above, Ethio Telecom spent a years and huge amount of financial investment to deploy the system. Furthermore, the documents reviewed by the researcher those related to the implementation of the established ERP system in Ethio Telecom, there exists some areas which enhance the performance of the organization and some are not. Thus, the researcher attempted to study the implementation of ERP system for web-based procurement on organizational performance, particularly, Ethio Telecom, CNR).

1.2 Statements of the Problem

An ERP system intended to affect a wide range of business processes and activities inside a company, and frequently implemented with high expectations for the advantages and transformation that the project will bring (Ibrahim, 2010).

There are some studies conducted to examine the implementation of ERP in the Ethiopian context. For instance: (Engidayehu (2014) studied Enterprise Resources Planning (ERP) Implementation in Ethio-telecom, focusing on the practice and challenges of ERP system. Elsa (2015) conducted study on ERP post-implementation management framework at the Ethiopian Airlines. Foziya (2017) examined factors

affecting the Implementation of Enterprise Resource Planning at Commercial Bank of Ethiopia. The above-mentioned researches were conducted on ERP system implementation issues and success and failure factors in certain sectors both globally and in the Ethiopian context. Therefore, to the best of the knowledge of the researcher no sufficient empirical studies have been conducted regarding the research done in this specific module of ERP implementation for web-based procurement on organizational performance focusing on telecommunication industry specifically.

ERP evaluation reports the other challenge the company face after implementing ERP is that lack of skill of users, lack of Commitment of top management, poor IT infrastructure, Lack of integration (Internal and external customers), Lack of delivery precision, lack of adequate support and knowledge transfer from vendors' side and Longer time lag in the process of delivering the goods to end customers due to delays in procure

Additionally, employees and managers demonstrated lack of commitment to utilize the system due to lack of enough understanding and poor utilizations of the automated digital platforms, During system down the company employees are back to their manual work which is more time taking and when the system recover staffs are forced to insert the data they worked manually and it creates high work burden for the staff, still relying on manual paper based than the automated platforms in the practice of ERP system for web-based procurement implementation on organizational performance. Therefore, the researcher attempted to investigate and show how implementation of ERP system for web-based procurement affects the performance of an organization and generally aimed to fill the above stated gaps. Since, the literature focusing on Ethio Telecom as there have been no previous studies on this company in this specific Procurement Module of ERP by incorporating both the stated independent and dependent variables.

Basic Research hypothesis

The study was try to seek answers to the following four basic research hypothesis;

H1: ERP based procurement practice Information system has statistically significant effect on organizational performance in Ethio-Telecom.

H2: ERP based procurement practice adds Organizational value has statistically significant effect on organizational performance in Ethio-Telecom.

H3: ERP based on Employee management has statistically significant effect on organizational performance in Ethio-Telecom.

H4: Internal process in ERP based procurement has statistically significant effect on organizational performance in Ethio-Telecom.

H5: Decision making in ERP based procurement has statistically significant effect on organizational performance in Ethio-Telecom.

H6: Inventory management has statistically significant effect on organizational performance in Ethio-Telecom.

1.3 Basic Research Questions

1. What are the key structures of the web-based ERP system adopted by Ethio telecom CNR?
2. What specific implementation practices of web-based procurement process adoption via automated platforms during the day-to-day activities?
3. How has the ERP system impacted procurement process to excel through efficiency and effectiveness?
4. What is the influence of ERP implementation on overall organizational performance?

These basic research questions provide a foundation for the investigation into the implementation practices of Enterprise Resource Planning in web-based procurement and their impact on organizational performance at Ethio telecom Central North Region in Debre Berhan, Ethiopia.

1.4 Research Objectives

1.5.1 General Objective

To assess the impact of Enterprise Resource Planning (ERP) implementation practices on organizational performance in the context of web-based procurement at Ethio Telecom Central North Region (CNR).

1.5.2 Specific objectives

These specific objectives aim to provide comprehensively investigate the impact of ERP implementation practices, with a focus on web-based procurement, on the organizational performance of Ethio telecom Central North Region in Debre Berhan, Ethiopia.

1. To identify if information system ERP for web-based procurement has an effect on organizational performance in Ethio-Telecom.

2. To determine the effect of organizational business value on organizational performance in Ethio-Telecom.
3. To study if employee management has an effect ERP practice on organizational performance in Ethio-Telecom.
4. To identify if internal process has an effect ERP practice on organizational performance in Ethio-Telecom.
5. To examine ERP for web-based procurement effect of decision-making through ERP on organizational performance in Ethio-Telecom.
6. To examine the effect of inventory management on ERP practice on organizational performance in Ethio-Telecom.

1.5 Significance of the study

The study was focused on the implementation practices of Enterprise Resource Planning (ERP) in web-based procurement at Ethio telecom holds significant importance and contributes to both academia and practice.

- **Advancement of Knowledge:** The study contributes to the academic field by expanding the understanding of ERP implementation practices, particularly in the context of web-based procurement within the telecommunications sector. It adds to the existing body of knowledge by providing insights into the unique challenges and opportunities faced by organizations like Ethio telecom.
- **Practical Insights for Organizations:** Organizations, especially in the telecommunications sector, can benefit from practical insights derived from the study. The identification of best practices, challenges faced, and strategies employed by Ethio telecom CNR offers a roadmap for other firms considering or undergoing similar ERP implementations.
- **Enhancement of Organizational Performance:** The study aims to assess the impact of ERP implementation on organizational performance. By uncovering the specific areas where ERP contributes to efficiency, cost-effectiveness, and overall performance, the research provides actionable recommendations for Ethio telecom and similar organizations to optimize their operations.
- **Benchmarking Opportunities:** Ethio telecom's successful ERP implementation practices can serve as a benchmark for other organizations in Ethiopia. The study highlights remarkable aspects, enabling firms to learn from Ethio telecom's experiences and potentially replicate successful strategies in their own ERP adoption journeys.

- **Strategic Decision-Making Support:** The findings of the study provide decision-makers, including executives and policymakers, with data-driven insights. Understanding the impact of ERP on strategic goals, decision-making processes, and overall organizational efficiency can support informed decision-making in technology adoption and organizational development.
- **Contribution to Research Methodology:** The research design, encompassing surveys, interviews, and focus groups, contributes to the field of research methodology. The mixed-methods approach ensures a comprehensive exploration of ERP implementation practices, allowing for a nuanced understanding of both quantitative and qualitative aspects.
- **Local Context Sensitivity:** The study, focusing on Ethio-telecom CNR in Debre Berhan, Ethiopia, acknowledges the importance of considering local contexts in technology adoption. This sensitivity ensures that recommendations and findings are tailored to the specific challenges and opportunities present in the Ethiopian business environment.

In summary, the study not only advances academic knowledge but also provides actionable insights for organizations in Ethiopia, particularly in the telecommunications sector. Ethio-telecom's experiences serve as a valuable case study, offering lessons, benchmarks, and strategic recommendations for enhancing the implementation practices of Enterprise Resource Planning in web-based procurement.

1.6 Scope of the Study

The scope of the study is designed to provide a comprehensive understanding of the implementation practices of ERP in web-based procurement and their impact on organizational performance at Ethio-telecom CNR.

- **Geographical Scope:** The study focuses specifically on Ethio Telecom Central North Region (CNR).
- **Organizational Scope:** The primary organizational focus is on Ethio Telecom CNR, examining the implementation practices of Enterprise Resource Planning (ERP) in the context of web-based procurement.
- **Temporal Scope:** The study covers a specific timeframe, including the period of ERP implementation at Ethio telecom CNR. The temporal scope will be clearly defined to capture relevant data for analysis.

1.7 Limitation of the Study

The study on Implementation Practices of ERP in Web-Based Procurement at Ethio-telecom CNR, Debre Berhan, Ethiopia have a number of possible limitations include time constraints, access to certain proprietary information, and unforeseen challenges during the ERP implementation process.

- **Single-Case Focus:** The study focuses exclusively on Ethio telecom Central North Region (CNR), limiting the generalizability of findings to other organizations. Results may be specific to Ethio telecom CNR and may not fully represent broader industry trends.
- **Temporal Constraints:** The study's time frame may be limited to the available historical data and the period of ERP implementation at Ethio telecom CNR. Changes or developments post-implementation may not be fully captured.
- **Availability of Data:** The availability and accessibility of data, particularly internal organizational data, may pose constraints. Some information related to ERP implementation practices and organizational performance may be proprietary or restricted.
- **Bias in Stakeholder Perspectives:** The study relies on the perspectives of various stakeholders, and there might be inherent biases in their responses. Stakeholders may provide feedback based on personal experiences or opinions, influencing the study's outcomes.
- **Technology Evolution:** Rapid technological advancements may lead to changes in ERP systems and web-based procurement practices over time. Despite these limitations, the study aims to provide valuable insights into the implementation practices of ERP in web-based procurement and their impact on organizational performance at Ethio telecom CNR in Debre Berhan, Ethiopia.

1.8 Definitions of Terms

These definitions aim to provide clarity and understanding of key terms used in the proposed study on the implementation practices of ERP in web-based procurement and their impact on organizational performance at Ethio telecom CNR in Debre Berhan, Ethiopia.

Enterprise Resource Planning (ERP): ERP refers to integrated software applications designed to automate and streamline core business processes such as finance, human resources, and procurement within an organization.

Web-Based Procurement: Web-based procurement involves the electronic acquisition of goods and services through online platforms, leveraging the internet to facilitate and manage the entire procurement process.

Organizational Performance: Organizational Performance is the measure of how well an organization achieves its strategic objectives and operational goals, often assessed through key performance indicators (KPIs) and other relevant metrics.

Data Security and Privacy Measures: Data security and privacy measures encompass policies, protocols, and technologies implemented to safeguard sensitive information within the ERP system, ensuring confidentiality, integrity, and availability.

Internal process: defined as business processes that are performed within an organization without the involvement of any external partners.

Organizational business value: Organizational business values are a set of core beliefs held by an organization.

Inventory management: Inventory refers to all the items, goods, merchandise, and materials held by a business for selling in the market to earn a profit.

Information system: is a computer system consisting of hardware and software that serves as the backbone of an organization's operations.

Employee management: An employee management system is technology designed to streamline core HR services and improve workforce productivity.

Organizational performance: organizational performance is a method of measuring the success of the organization to ensure that it achieves its goals.

ERP System: Enterprise resource planning (ERP) is a type of software system that helps organizations automate and manage core business processes for optimal performance.

1.9 Organizations of the Study

The study was organized as five chapters, the first chapter explains background of the study, statement of the problem, research question, objective of the study, significance of the study, hypothesis of the study, scope of the study, limitation of the study, and organization of the paper. Chapter two were contain theoretical literature, empirical review and conceptual framework of the effects of ERP for web based procurement on organization performance. Chapter three deals with the methodology of the study, which contains description of the study area, research method, explanation of variables, data collection instrumentation, model assumption tests, reliability and validity, data source, and data analysis discussed. In the fourth chapter, presented a major result, discussions, and interpretation that deal the descriptive analysis, econometric analysis, and overall data presentation and analysis. Finally, in chapter five, the study provided a summary, conclusions, and recommendations and suggestion for future researcher.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The following section explain related literatures and imperial facts. It includes the Knowledge-intensive nature of ERP system, and the benefits to be obtained through ERP implementation, the historical background of the system and its related evolutionary stags, the conceptual understanding by differentiating ERP with E-Business, common ERP platforms, it's characteristics from the technical, organizational and information perspective and ERP implementation success and failure factors will be dealt under literature review part. On the other hand, the reason behind ethio telecom goes for ERP implementation has assessed under the Imperial review part.

2.2. Theoretical Framework

2.2.1. The Meaning of ERP

According to O'Leary (2000), Enterprise Resource Planning (ERP) is a computer-based system designed to place companies' major activity areas: planning, production and customer service under an umbrella. ERP system is a software package of different modules such as fixed assets management, controlling, financial accounting, manufacturing, human resources, planning and development and so forth. Each module is business process specific. Generally, companies choose one ready-made package available for their industry but it is also common to select the modules that best meet their needs.

According to Lineke (2014), ERP systems are computer applications that are used by companies in many industries in addition its supports data integration and support for best practice processes. The data integration means the data only entered once, after which they are available for use throughout the organization. As noted by Goeun & Linda (2003), also support the above listed points by ERP is the process of integrating all the business functions and processes in an organization to achieve numerous benefits. First, a single point of data entry helps to reduce data redundancy while saving employee's time in entering data, thereby reducing labor and overhead costs. Second, the centralization of information, decision making, and control leads to increases in efficiencies of operations and productivity, as well as coordination between departments, divisions, regions, and even countries.

As stated by Almahdi (2015), Enterprise Resource Planning (ERP) system solutions are currently in high demand by both manufacturing and service organizations, because they provide a tightly integrated solution to an organization's information system needs. ERP allows professional people to manage their company in one

system that integrates the entire business process and creates a wide enterprise view of significant corporate information.

In addition, according to Nafjan & Mudimign (2005), Enterprise resource planning (ERP) system as a business management system that comprises integrated sets of comprehensive software, which can be used, when successfully implemented, to manage and integrate all the business functions within an organization. These sets usually include a set of mature business applications and tools for financial and cost accounting, sales and distribution, materials management, human resource, production planning and computer integrated manufacturing, supply chain, and customer information.

Generally, Enterprise Resource Planning (ERP) is software that attempts to integrate all departments and functions across a company in to a single computer system that can serve all those departments' particular needs.

2.2.2. Evolution of ERP

According to E.M. Shehab (2004), the term ERP was invented in 1990 by Gartner, but its roots date to the 1960s. Back then, the concept applied to inventory management and control in the manufacturing sector. Software engineers created programs to monitor inventory, reconcile balances, and report on status. By the 1970s, this had evolved into Material Requirements Planning (MRP) systems for scheduling production processes. In the 1980s, MRP grew to encompass more manufacturing processes, prompting many to call it MRP-II or Manufacturing Resource Planning. By 1990, these systems had expanded beyond inventory control and other operational processes to other back-office functions like accounting and human resources, setting the stage for ERP as we've come to know it.

As cited by E.M. Shehab (2004), Currently ERP systems contain Web components for ebusiness and an international communication which enables both manufacturing and service sectors to improve the information flow across multiple sites, even in different countries. ERP system has features that enable to translate language into consideration. Of course, languages are rarely translated with 100 per cent accuracy, but the systems have the ability to communicate through the language barrier. Due to exchange rates availability via the internet at real time ERP have ability to conduct business transaction with real time adjustments for currency values. Various human resources laws and regulations unique to individual locations also can be set up in to ERP systems. The ERP systems allow managers to access business transactions that are conducted anywhere within

their multi-site ERP system. Improving the information flow will lead to better visibility of product and customer information at any of the multi-site location whenever required.

Figure 1; ERP Evolution



Source: The Evolution of ERP: A Historical Perspective, M.A. Rashid (2002, P-4)

As per to Mafaz (2005), ERP has expanded to encompass business intelligence (BI) while also handling "front-office" functions such as sales force automation (SFA), marketing automation and ecommerce. With these product advancements and the success stories coming out of these systems, companies in a broad range of industries from wholesale distribution to ecommerce use ERP solutions. As a result, companies of all sizes and a wide range of industries are transitioning to ERP systems. When you stop to consider the benefits of ERP, it's easy to see why it's become so popular and why its use will continue to grow so rapidly.

2.2.3. Functions of ERP

Rashid et al., (2002), different ERP vendors provide ERP systems with some degree of specialty but the core modules are almost the same for all of them. Some of the core ERP modules found in the successful ERP systems such as, accounting management, financial management, manufacturing management, production management, transportation management, sales & distribution management, human resources management, supply chain management, customer relationship management and e-Business.

2.3. Benefits of ERP system

Implementation of ERP project created benefits for the organization. According to Hossain, Patric & Rashid (2002), the adoption of an ERP system will provide benefits to introduce new procedures that will eradicate existing inefficiencies. Attitudes favorable to the adoption of ERP systems will be enhanced to the extent that ERP systems are perceived as agents of changed processes.

According to Mafaz (2005), Organizations in developed countries have recognized ERP systems as effective management systems leading to excellent planning and scheduling capability and significant improvements in productivity. Better customer service, higher return on investments and greater reduction in material costs are other benefits expected from an ERP system.

As stated by Goeun (2013), the global village concept has introduced a completely new way of doing businesses, forcing organizations to redefine their processes by leveraging IT as a strategic business tool to gain the competitive advantage and successfully achieve the goals of the organization. Most ERP vendors provide benefits to update procedures and align with perceived best practices to meet changing business needs more quickly. As stated by Priya (2016), integrated system architecture is a major component of the system as the integration enables an enterprise to access the same system across different demographics. The software can integrate high volume of data as well as processes across many departments and geographies. It further empowers an enterprise to move their products much quicker, reconcile shipments faster, and many more. Nonetheless, the enterprise resource planning software provides organizations access to a multitude of crucial data, which was either unavailable or impossible to derive with other software. Human resources functions can be improved through ERP by removing redundancy and tediousness of daily activities. This allows more time to be spent on value-added duties, which in turn leads to a more fulfilling job for employers. As employees become more empowered, they become more involved in decision-making. With the right training and

guidance, they can make decisions on their own without the close, watchful eye of their supervisor, allowing their supervisor to spend more time on value-added activities.

As stated by Oliver & Romm (2002), By adopting ERP technology organization have benefits that lowers the costs of production, a producer organization may be able to secure a price advantage and thereby achieve a greater market share or reap larger than usual profits in addition improving the performance of existing activities (speed, accuracy, economics) and integration of data and systems to avoid duplication, inconsistency and misinformation. A large sum of money was spent by Firms on information systems through expecting the benefits to have strategic values. In today's dynamic economy, continuously generating new knowledge, combined with operational efficiency and effective delivery mechanisms increase the strategic value of a firm. Organizations invest in ERP systems to achieve important benefits. These benefits may come in the form of improved business productivity such as shortened lead time, lower cost and efficiency communication among functional boundaries In the ERP system environment.

As stated by Ross (1999), articulated that as a business and strategic perspective implementing ERP is seen as way to improve corporation's effectiveness and efficiency, reduce their operating, personnel, inventory and IT costs, and improve their productivity, business growth, production scheduling, delivery time, customer service, and overall quality. Additionally, data visibility and timely information is important to make better business decisions.

While the concept behind an ERP system is straightforward unifying all departments and their information on a single system the benefits are vast. Here are 15 of the most notable advantages an ERP system offers:

Data Security: Data has become a prized possession for businesses because it is so critical to making the best possible decisions, and ERP software can help protect that asset. The fact that all this data is in one place, rather than spread across multiple systems with varying levels of security, increases the level of protection. It replaces spreadsheets and other documents sitting on employees' desktops and being passed around via email. With a cloud ERP system, your information is typically distributed across multiple remote servers to establish redundancies and protect against a single point of failure, adding another layer of security. This is especially important if your company handles a lot of sensitive customer data.

In another sense, an ERP system can increase data security by limiting who can view and edit data. Most systems have permissions that are easy to control, ensuring employees only see the information they need to and reducing opportunities for fraud or other nefarious activities.

Standardized & Centralized Data: Much of the value of ERP can be traced back to the fact that all information from different departments is stored in one place. Without such a system, data is often spread far and wide across an organization in various applications and spreadsheets, making it harder for staff to track down whatever it is they need. Additionally, this approach often results in duplicate data in inconsistent formats, posing more challenges. Standardized information allows you to get all the insights you need to make more informed decisions that help the business save as much time and money as possible.

Compliance: Having accurate, up-to-date records that are easy to find and searchable can really reduce the work required to comply with any regulations your company must adhere to. Customizable reporting tools within the software also make it far easier to track compliance and adjust as necessary. This makes you much more auditable, as well, because all the information an auditor might need to review is easily accessible.

Certain ERP systems can even support specific financial standards like GAAP or regulations like the Sarbanes-Oxley Act (SOX). The best solutions will also update to reflect any changes to these regulations so you remain compliant. Staying compliant can quickly become difficult, especially if you're in a highly regulated industry, but ERP makes it much more feasible.

Increased Productivity: There are countless ways an ERP system can give a major boost to productivity. One way is that it automates many basic, repetitive tasks, freeing up employees to work on other projects that bring more value to the organization. It can also allow them to complete a variety of tasks faster by making processes more straightforward and reducing the time spent searching for the information they need. Since employees have visibility into the entire company, they don't have to ask around for a specific set of data or details on how certain processes work.

Greater productivity also means you don't have to add to headcount as much as would be necessary without an ERP platform. By removing a significant amount of work from the plates of employees, they can then take on new tasks and focus on projects that use their true skills and expertise, (Chrasil, 2015).

Visibility: Visibility is another one of the broad, fundamental benefits of ERP everyone having visibility into various aspects of the business is a powerful thing. It enables faster and better decisions because managers have

all relevant context that can assist them. For example, if the purchasing team can see the status of in-transit purchase orders that have not yet reached the warehouse, they can factor that into the orders they're about to submit to avoid excess or insufficient stock.

Visibility into the status of processes and data managed by other teams ultimately helps all teams and individual contributors do their jobs better. It also eliminates the time and effort spent trying to simply find this information.

Scalability: The beauty of leading ERP systems is that you can use the functionality you need now while leaving the door open to add more capabilities down the road. In that sense, the system can scale with your business as it grows and evolves. You can also add new users as your teams grow. There's no need to get a new ERP solution just because your business has changed even in big ways since you implemented the existing system.

Mobility: Employees have become very comfortable using smartphones and tablets instead of computers to complete many tasks, and in light of that trend, today's ERP systems are mobile-friendly. Since users access cloud systems through the web, they can pull up all the dashboards, reports and other information they need to see in a mobile browser. Many vendors now have mobile apps, as well, that can provide a better user experience on smaller screens.

Cost Savings: For business owners and leaders, the most convincing reason to buy an ERP system is that it lowers overall costs, often in a big way. The automation we've already discussed can reduce or even wipe out many administrative and operational costs. Manual data entry or processes that require long paper trails, for instance, are often eliminated with this software. All the insights this software can provide mean ample opportunity for other cost savings. The ability to monitor the pulse of your organization in one place means you can quickly identify the source of higher expenses, which makes it much easier to reduce costs. Additionally, the improvements to planning that an ERP system enables should prevent rush orders, over-production or over-ordering, all of which can drive up costs. There are countless ways an ERP system can reduce your costs, which is why these solutions often have a fast ROI.

Real-time Reporting: Reporting is without question one of the biggest and most immediate benefits of using an ERP system. The possibilities are endless with the ability to customize reporting across all functions finance, inventory, orders, procurement, sales and marketing, HR and anything else you can dream up. Whatever you

want to measure, or whatever KPIs matter most to your company, an ERP solution can calculate it. One can not only track the performance of different components of the business, but also compare departments to understand what's driving the business forward and what's holding it back. It's essential that your report reflects the latest data, and that's why real time is so important. If it takes two weeks to receive revenue numbers from the last quarter, that's not very useful because the information is already outdated and may not be relevant. But if revenue totals update in real time, as each sale happens, you can immediately use it to inform decision-making. This has become critical in today's fast-paced, hyper-competitive environment.

Operational Efficiency: An ERP solution increases efficiency across your organization since it touches every piece of the business. Everyone from recruiters to warehouse managers to C-level executives should see improvements that help them thanks to greater automation and availability of information. Processes become less time-intensive, which often benefits not just the company, but customers as well. That can reduce operating costs in a big way and generate higher profits. Consider a manufacturer that makes 10 products and has an average profit margin of 20%. With an ERP system, it can easily spot its least profitable products, and then work through the data to find that labor costs are much higher for the two items with the lowest margins. After talking to staff, the company discovers that most of the work that goes into making those items is manual and time-consuming. So the manufacturer decides to purchase a piece of machinery that can automate the production of those goods and sees its average profit margin climb to 25%. Just like that, the ERP software has saved the business hundreds of thousands of dollars annually.

2.4. Challenge of ERP System

Implementation of any system has its own challenges especially when the project is new to the organization. According to Goeun (2013), In spite of ERP's significant growth there are a number of challenges that companies may encounter when implementing ERP. Boo Young (2007), stated many engineering and construction firms know how beneficial ERP systems are, but they still hesitate to adopt these systems due to their high cost and risk. The most known challenges include resistance to change from the staff, lack of support from the top management, organizational culture and lack of continuous training.

This issue also noted by Goeun (2013), ERP implementation have its own challenges like Lack of senior manager commitment, ineffective communications with users, insufficient training of end-users, failure to get user support, lack of effective project management methodology, attempts to build bridges to legacy applications, conflicts between user departments, composition of project team members, failure to redesign

business process and misunderstanding of change requirements. ERP systems are complex systems that face high probability of failure. Implementing such systems need careful planning and guarding against factors for failure. In addition, according to Sanchita (2013), there are challenges during implementation of ERP it includes:

According to Bingi, sharama & Godla (2006), implementing an ERP causes massive change that needs to be carefully managed to reap the benefits of an ERP solution.

Critical issues that must be carefully considered to ensure successful implementation include commitment from top management, reengineering of the existing processes, integration of the ERP with other business information systems, selection and management of consultants and employees, and training of employees on the new system. Companies could spend hundreds of millions of dollars and many years implementing ERP solutions in their organizations. Once an ERP system is implemented, going back is extremely difficult; it is too expensive to undo the changes ERP brings into a company. Most enterprises in an attempt to carry out ERP often end up in failure and it seems the probability of the mishaps is considerably high. There are several failed ERP attempts and companies lost not only the capital invested in ERP packages and millions paid to outside consultants, but also a major portion of their business. Implementing an ERP system is a careful exercise in strategic thinking, precision planning, and negotiations with departments and divisions.

According to Goeun (2013), it is important for companies to be aware of certain critical issues before implementing any ERP package. Careful consideration of these factors will ensure a smooth rollout and realization of full benefits of the ERP solution. ERP implementations have sometimes failed to achieve the organization's targets and desired outcomes. Much of the research reported that the failure of ERP implementations was not caused by the ERP software itself, but rather by a high degree of complexity from the massive changes ERP causes in organizations.

Hence; depending on the degree of failure according to our existing practical situations here are the major ERP challenge areas:

➤ **Lack of Top Management Commitment**

The IT literature has clearly demonstrated that for IT projects to succeed top management support is critical. This also applies to ERP implementations. Implementing an ERP system is not a matter of changing software systems, rather it is a matter of repositioning the company and transforming the business practices. Due to

enormous impact on the competitive advantage of the company, top management must consider the strategic implications of implementing an ERP solution. An organization goes through a major transformation, and the management of this change must be carefully planned and accurately implemented. The top management must not only fund the project but also take an active role in leading the change Bingi, et al., (2006).

According to Eldabi & Naseer (2016), Management may not be clear about the needs and requirement of IT system such as ERP that why and how they are adopting it or whether such a capital investment is needed or no. In addition Intervention from management is often necessary to resolve conflicts and bring everybody to the same thinking but most of the time top management lacks this. Since ERP implementation inevitably causes organizational changes; it requires the engagement of senior management from across the organization that able to resolve conflicts. Without the commitment of senior management, ERP implementation has a high risk of failure.

➤ **Organizational Resistance**

Chen et. al., (2009) stated that No matter how the revolution proceeds; the main target appeal in the revolution is the employees. For most employees, because they have been accustomed to the past traditional business mode, once encountering a revolution, they will be unwilling to cooperate and will resist in order to keep a stable condition.

As stated by Nafjan & Mudimign (2005), when implementing an ERP system, top management commonly faces an unwanted attitude from potential users for one reason or another, they resist the implementation process.

➤ **Reengineering**

Bingi et. al., (2006) Implementing an ERP system involves reengineering the existing business processes to the best business process standard. ERP systems are built on best practices that are followed in the industry. One major benefits of ERP comes from reengineering the company's existing way of doing business. All the processes in a company must conform to the ERP model. The cost and benefits of aligning with an ERP model could be very high. This is especially true if the company plans to roll out the system worldwide. It is not very easy to get everyone to agree to the same process. Sometimes business processes are so unique that they need to be preserved and appropriate steps need to be taken to customize those business processes.

➤ **Shortage of ERP Consultants**

According to Salmela & Koskivara (2013), because the ERP market has grown so big so fast, there has been a shortage of competent consultants. The skill shortage is so deep that it cannot be filled immediately. Finding the right people and keeping them through the implementation is a major challenge. ERP implementation demands multiple skills, functional, technical and interpersonal skills. Again, consultants with specific industry knowledge are fewer in number. There are not many consultants with all the required skills. Managing a consulting firm and its employees is even more challenging. The success or failure of the project depends on how well you meet this challenge.

Due to the size and complexity of an ERP system barriers to organizational activities may often exist within the organizational.

As cited by Ömür Y. Saatçioğlu (2009), Challenges categorized as people, process or technology related challenges. While Geo Chao & Miguael (2010), develop post implementation challenges consists of two hierarchical levels ranging from general Challenges categories (e.g. organizational Challenges) to specific Challenges items (e.g. lack of top management support) and categories challenges as cultural, organizational and system Challenges.

2.5. ERP Implementation

Implementation of any innovation has been referred to as a re-invention of the technology and simultaneous adaptation of the organization. ERP implementation as the process of developing the initial business case and planning the project, configuring and implementing the packaged software, and subsequent improvements to business processes (Ahmad, 2015).

ERP implementation success would not be possible without select critical success factors. There are numerous critical factors which contribute to the ERP success or failure. ERP implementation is considered successful when the implementation of the system results in reduced costs, increased service levels, various benefits to an organization's internal and external environment, maintains adequate project management, user involvement and adequate performance and security of the ERP system. While an ERP implementation is considered failure, when the implementation of the system results in delayed implementation, going over budget and needing additional funding, potential loss of authorization security, loss of data confidentiality, loss of authentication safety, server downtime, or ultimately system failure (Ahmad, 2015).

The success or failure of ERP implementation is closely related to how the companies handle the process. The ERP implementation process could differ in every company. The differences might concern to the implementation goals, the scope, or the available resources. But among all the differences in every implementation process there are some general points that are important in the process and would strongly result in the success or failure in the implementation of ERP. Those important points were identified as critical success factors (Li & Sylvia 2005).

As disused by Goeun (2013), ERP systems implementation is a set of complex activities, involving all business functions and often requiring between one and two years of effort, thus companies should have an effective project management strategy to control the implementation process, avoiding overrun of budget and ensuring the implementation within schedule. Having a realistic time frame is very important. If the target completion time schedule were unrealistically short, the pressure to rush through would result in the implementation being carried out in a haphazard manner. On the other hand, if the implementation delayed for too long, people would tend to lose faith and patience, which also will result in low morale and resistance. Conducting periodic project status meetings in which each team member reports progress and problems is an invaluable means for evaluating the progress of the ERP implementation. Selecting the right project leader is also important for the project implementation success. Another decisive element of ERP implementation success or failure is related to the knowledge, skills, abilities, and experience of the project manager as well as selection of the right team members, which should not only be technologically competent but also understand the company and its business requirements.

2.6. Empirical Literature Review

Su and Yang (2010), describe the production of real time data shared across the organization and consequently the integration and automation of business processes as the main benefits of ERP system while in the new business environment automation, effectiveness and efficiency in operation and real time data are important factors for business success and to obtain these benefits successful ERP system implementation is a prerequisite.

An attempt has been made to review the relevant and available studies and research work and the results are summarized as follows.

Eldabi, T.& Naseer,A.(2016), investigate factors that contribute to the successful implementation of enterprise resource planning (ERP) systems concluded that the main reason ERP systems are pursued by top management are for efficiency and cost reduction so that a business may stay competitive in the marketplace. The study

analysis of results reveal that having clear goals and objectives, user training and education, interdepartmental communication as well as user involvement in evaluation, modification and implementation are considered most critical success factor. There are factors found to be critical in the failure of ERP implementations: dilemma of internal integration, poor understanding of business implications and requirements, lack of change management, poor data quality, misalignment of IT with business, hidden costs, limited training and lack of top management support. Emad M. Kamhawi, (2008), recommended that ERP system usage is directly related with ERP benefits but the association is moderated by the degree of knowledge integration mechanisms within the firm. The results also disclose that technical resources, organizational fit and the extent of ERP implementation are key drivers of ERP system usage. The benefits derived from ERP should not be credited to one single type of benefits. Operational, strategic, and technical types of benefits indicated similar levels of importance. Also it was found that many of the benefits with high rankings in this survey such as improving productivity, inventory reduction, new improvement processes, and customer responsiveness, have been found as prime benefits as in previous studies.

According to Ömür Y. Saatçioğlu, (2009), firms targeting to succeed in ERP projects should give emphasize to benefits of ERP system. Better management and controlling functions, financial flows control, information flows control, control of flow of goods and quickened information response time are the top benefits gained in the ERP projects. While cycle time reduction, lowered inventory levels, productivity improvement, and performance improvement, generate product differentiation, and facilitate business learning are the least important benefits .In addition the least important benefits fall in three categories as strategic, operational, and organizational.

Emad M. Kamhawi, (2008), illustrated large capital investments requirement, intensive training, and having other important priorities were the reasons from a possible challenges, which were found to be statistically significant reasons for not implementing ERP systems. Difficulties in changing to new from old systems, lack of in-house specialists, difficulties in estimating project requirements, significant resistance from staff, high costs of implementation, and poor reporting procedures are the most important challenges. While lack of commitment from top leadership, under performed project team, unclear strategic direction and vision for the use of ERP and lack of discipline the least important challenges.

Ten critical success factors should be considered during the ERP implementation as the most important factors. These factors are top management support, user involvement, clear goals and objectives, strategic IT planning,

user training and education, vendor support, teamwork and composition, monitoring and evaluation of performance, and education on new business Processes. These top critical factors can help companies to achieve successful implementation of ERP system (Ahmad, 2015).

According to Davenport (2000), adequate hardware and networking infrastructure are required for ERP application. Enterprise System cannot be without sophisticated information technology infrastructure. Three primary attributions of success were identified: willingness to change to new computer applications, effort, and persistence. In addition to the infrastructure, clearly, the software configuration has a critical influence on the implementation process and outcome.

Parto et al. (2016) investigated the Impact of Enterprise Resource Planning on Financial Performance in a Developing Country. The analyses were based on data drawn among 93 Iranian manufacturing firms. The findings demonstrated that the implementation of each ERP system module separately influences financial performance indicators. Besides, the results indicated that implementing complete package of ERP system might provide synergetic impact on firm's financial performance.

Kim et al. (2009) investigated the relationship between IT investment and company performance using data from the top 100 electronics firms in China to study the impact of IT investment on financial performance, and they compared the results to those of similar organizations in the United States. The empirical results showed that IT investment had a positive impact on 32 company performance in China; they also showed no significant differences between the two countries. Almgren and Bach (2014) contend that ERP precipitates more profit for the company by enhancing productivity.

The researcher's further explain that ERP lead to general reduction in the cost of doing business and in so doing increase the profit margin of the firm. According to Chtiou (2009) about 70% of the most profitable firms and 90% of the leading firms in market capitalization have implemented ERP. Gayo (2014) examined 695 leading firms in Spain on the impact of ERP on the profitability. They determined that firms that had successfully implemented ERP systems realized positive ROI, ROA, asset turnover (AT) and profit margin. The conclusion here is that ERP promises sales increases and reduction in operational costs hence profitability for adopting firms. (Velcu 2015) notes that one of the initial studies on the relationship between ERP on organizational performance revealed that ERP had a positive effect on productivity of employees in the firm. He notes that the study determined a gross marginal product of ERP on productivity to be about 95%. (Booth et al. 2000)

investigates the impact of ERP system on accounting processes of Australian companies. Their evidence suggests that ERP systems have proved to be effective in transaction processing and less effective in reporting and decision support. Further, they suggest that ERP systems provide the incentives and means for adopting newer accounting practices such as activity-based budgeting (ABB), product lifecycle costing (PLC), and balanced scorecards. (McAfee A2002) based on a survey of 101 U.S. firms that implemented SAP R/3 (former name of the enterprise resource planning software), McAfee A found that after ERP implementation, many company performance indicators improved, including the ability to provide customers with information, order turnover time, and the completion rate of orders. (Singh and Singh 2013) show that ERP systems increase customer satisfaction by narrowing the amount of time for service or product delivery.

Furthermore, (Shannak, 2016) conducted a study to examine the impact of ERP on organizational performance basing his assessment on the balanced scorecard. He found that ERP systems increased the effectiveness and efficiency of the 33 firms that implemented them and that this resulted in a better customer satisfaction. The two explain that use of ERP systems can lead to a reduction of the order cycle times, customer response times as well as delivery speeds hence facilitate positive customer satisfaction. (Bambang et al., 2015) investigated the Impact of Enterprise Resources System and Supply Chain Practices on Competitive Advantage and Firm Performance. The research was carried out for 148 Indonesia Companies' executives. The results indicated that SCM practices and ERP systems has positive impact on competitive advantage and firm performance. Finally, that competitive advantage positively affects the firm performance. Ucakturk & Villard (2013) find that ERP systems are most reliable source of information for managerial decision-making.

They further contend that ERP facilitate real time environmental analysis and provide managers with information that they can use strategically to ensure organizational performance. Mustapha & Ismail, (2013) conducted a study to examine the impact of IT on monitoring and found that firms with an integrated information system experienced significantly lower costs for monitoring. They argued that the ERP system allows the firm to store information in one place and make it easy for managers and other employees concerned with monitoring and evaluation of the firms' progress to obtain such vital information. In their study, (Stefanou & Revanoglou, (2006) found that an ERP implementation in a general hospital resulted in improvement in information quality which can lead to better decision making and improvements in health care, reduction of the ambiguity about order information, automated generation of the list of requirements, accurate billing and therefore no loss of income, real-time updating of patient records, existence of available information regarding the type and the quantity of ordered-granted medicines for each patient, and follow-up of suspended orders.

Engidayehu (2014) conduct an assessment of ERP implementation in Ethio telecom, practice and challenges of ERP system in Ethio telecom focusing mainly on automating the major support activities of the company like finance, human resources and supply chain management. And conclude that ERP implementation has supports the company by reducing the financial cycle time, decision making cycle time, procurement lead time and pay slip generation time. (Elsa, 2015) studied a research on ERP Post-Implementation Management Framework in of case of Ethiopian Airlines.

A case study approach and a combination of quantitative and qualitative methods have been used to collect and analyze data. The survey questionnaire and interview method were used for data collection. The quantitative data were analyzed by employing appropriate techniques of descriptive and inferential statistics using SPSS software tool. The result of the study indicated that organizational theme constructs were the most critical determinants of ERP post-implementation success; which make the highest contribution (58.93%) of the total variance. Accordingly, continuous improvement (41.02%), user involvement (6.61%), training (4.94 %), absorptive capacity (3.23%) and top management championship (3.13%) are the major constructs of organizational theme. Technical theme has a significant contribution which explains 10.36% of the total variance of ERP post-implementation success. Foziya (2017) factors affecting the Implementation of Enterprise Resource Planning at Commercial Bank of Ethiopia. The researcher has employed a case study in which qualitative research method was also used to collect and analyze data, Pattern matching technique employed to analyze the data collected through interview, direct observation and participation .The research revealed that factors which affect ERP implementation are technological, organizational and people, the stages of CBE ERP implementation (requirement analysis, solution design, solution built and test, and production transition and support).

Adane (2017) studied the effect of Enterprise Resource Planning implementation on Internal Supply Chain Performance: -The case of Ethio Telecom- The research was conducted by selecting eight independent variables and their effect on dependent variable of Internal Supply chain performance. The finding suggested six independent variables such as top management support, project management, user training, IT infrastructure, vendor support and communication have a statistically significant relationship to predict internal supply chain performance, and the remaining two variables project plan & vision and project champion are not statistically significant to predict internal supply chain performance. User training and IT infrastructure accounts the largest share to explain the variation of internal supply chain performance. (Panant, et al. (2015) conducted a study “ERP system installation in operational management case study of a logistic trade organization in Thailand”.

The system implementation evaluation is regarded important for the Life Cycle of the system development to assure success in transitioning the enterprise resource planning (ERP) system from manual or conventional to electronic systems (SDLC). The purpose of this research was to investigate the ERP system assessment factors in the post implementation phase of one Thai logistics trading firm. Factors influencing the adoption of Enterprise Resource Planning (ERP) systems in Egyptian higher education institutions were explored by (Noorliza et al., (2017). The major goal of this research article is to present a conceived research model that can be utilized to investigate ERP adoption in higher education institutions. Kibebework (2015) also conducted research on the challenges and current status of ERP implementation in the cement industries of Mughher and Derba. The primary goal of this research is to evaluate the challenges and current status of ERP implementation in both companies. Fetsum (2017) uses a regression model to discover that effective project management, change management, and training are critical factors influencing the successful implementation of an ERP. According to the study's findings, ERP implementation success at the United Nations Economic Commission for Africa was insufficient when measured against critical success factors as measured by the system's process experts in the organization. The study then concluded that businesses should identify and outline critical success factors applicable in their area of expertise for successful ERP implementation.

So, this study will adopt a different dimension like research design and approach, problem and research area by focusing on studying the effects of ERP implementation for web-based procurement on organizational performance in Ethio-Telecom.

2.6.1. Reasons for Ethio Telecom to Go for ERP

For the developing world, a modern telecommunications infrastructure is not only essential for domestic economic growth, but a prerequisite for participation in competitive world markets and for attracting new investments. In the advanced industrial countries of Europe and North America, universal telecommunications services have penetrated every sector of society. In many developing countries the limited availability of service is constraining economic growth.

Apart from the telecommunication infrastructure deployment it is highly important to equip the back office activities through ITC in a manner that can highly assist telecommunication activities, and implementation of modern information and management guarantees successful improvement in competitive ability. The offered solutions are in demand by the seeking to enhance monitoring systems and upgrade their business activities. For companies to improve transparency of their business, they need to have up-to-date information about all

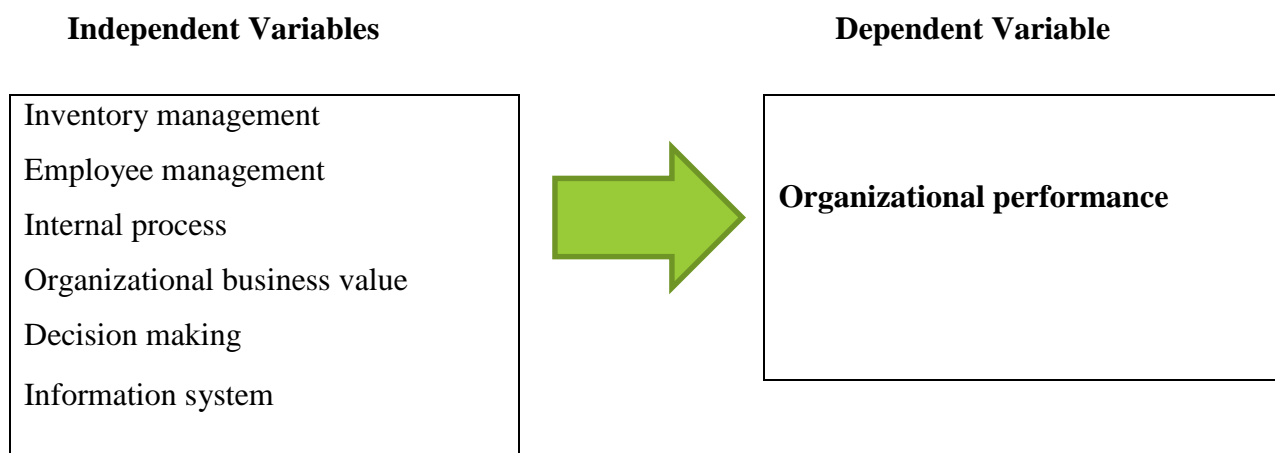
operation and financial indicators, assets and resources of all departments and divisions. Actuality is very important: information for the previous quarter or month will not help in making justified decisions. Hence, the requirements for a powerful system that can quickly process large volumes of information are highly required. ERP is an information system for company management, designed for the efficient planning and management of all company resources, as well as for the automation of all or individual key business processes. This solution enables proactive resources management for the quick adaptation of business processes to changing market conditions and allows evaluations of company's current state of affairs, which helps to increase the company's competitiveness across the board.

With the similar reasons mentioned above ethio telecom also introduce this system with the vision of obtaining world class telecom service provider. To be a world class operator there are many requirements set by ITU that all telecom operators across the world need to fulfill, and some of the requirements are having a well-defined business process as per the international standard named eTom and PCMM, supporting all this business process by information system mainly ERP and deploying the best quality of service for the customers in all aspects of product and services. Hence; for the fulfilling the expected requirement and to support the steady growth of the country's economic development ethio implemented an integrated ERP system on December 01/2011 on a modular manner. And mainly the license for this system implementation has been procured from the world well known software developer named Oracle through open tender and integrated by softpro (i.e. Indian software integrator). And the major reasons that drive the company to choose for ERP are mainly related to improving company's performance and decision making, to reduce labor costs, bureaucracy and other related errors. And the other reasons are: to enhance the integration among work units, and establish organizational standardization across different locations.

2.7. Conceptual Frame Work

A conceptual framework can be defined as a set of broad ideas and principles taken from relevant fields of enquiry and used to structure a subsequent presentation (Reichel & Ramey, 1987). As cited in literature ERP is a software system that integrates all business units and make business process easy and organized one. In addition, if the companies adopt such a system tool that helps to use its resources effectively and efficiently this leads successful implementation of ERP. The below conceptual frame work comes from different related literature that has been before and reviewed for this study.

As we have seen from the below conceptual frame work since ERP is one of a system project it have its own benefits and challenge. So any organization that implements ERP by enjoying the benefits must overcome the challenge. ERP is one of the projects which need a huge amount of cost, resource and time so to be effective in ERP implementation organization should give high focus. When implementing system project like ERP organization can get benefit. Frist it creates Effective management systems since any decision making process done by using this system save time and makes the decision making process more effective. The second one is excellent planning and scheduling capability by using ERP organization has the benefits to plan for the future and to schedule every activity. It also has the benefits for new or improved procedure because after implementing the system the existing backward and time taking working procedure can be changed.



Source: self-conceptualized as guided by (Koech G. K., 2014)

Figure 3. Conceptual Framework

The conceptual framework revealed that the six variables, Inventory management, employee management, internal process, organizational business value, decision making and information system would affect organizational performance.

CHAPTER THREE

Research Methodology

3.1. Introduction

Research methodology is a systematic way of solving a problem. It is essentially, the procedures followed by researchers for describing, explaining and predicting phenomena. It provides the work plan of a research. This chapter mainly discusses the methods employed by the researcher in carrying out the study. Specifically, introduction, the research design, research approach, sampling technique, sample size, data collection, reliability and validity, ethical considerations, methods of data analysis and presentation are properly considered.

3.2. Research approach

In this study, the researcher used quantitative approach or method. Quantitative approach helps researcher to test relationship between variables (Creswell, 2012). Quantitative method gives a reliable and statistically result and the data collected through structured questioners. The researcher believes that this kind of research approach provide relevant data about the research topic and supportive to meet the research objective since it can involves collecting and analyzing numerical data and applying statistical test. Since the aim of the study is to examine the effect of ERP system implementation on performance of organization, quantitative approach was deployed as the justification is discussed above.

3.3. Research Design

This study employed both descriptive and explanatory research design to examine the effects of ERP for web based procurement system on organization performance. The reason for using these designs is descriptive design help to describe the determinants of private manufacturing investment based on primary data and respondent response, challenges and opportunities and help to analyses non-quantified topics and issues. Whereas explanatory research design helps to analyze primary data, regression output (Kothari, 2004). As Saunders, Lewis & Thornhill (2009), explanatory research is about studying a situation or a problem in order to explain the relationship between variables. It attempts to clarify how and why there is a relationship between two or more aspects of a situation or phenomenon. Hence explanatory study design is deployed to determine and explain the relationship between the dependent variable-organizational performance and independent variables inventory management, employee management, information system, organizational business value, decision making and internal process.

3.4. Data Collection

In order to achieve its objectives, the research has been based on both primary and secondary data. The secondary data were collected from the company's work processes, policies, procedures, forms and other documents which are linked with the ERP implementation and also different literatures on the area. The primary data was collected through questionnaire. It includes open ended and close ended questions. According to (Kothari, 2004:32), this instrument of data collection is quite popular, particularly in case of big enquiries.

Primary data is from respondents of the study setting via questionnaire. close and open-ended questionnaire prepared by the researcher using a five-point Likert scale (strongly disagree, disagree, neutral, agree and strongly agree). The questionnaire prepared after making several reviews of related studies and the questions are standard and in line with the study problem. A questionnaire enables the researcher in collection of enormous amount of data on all study the variables within a short period (Ponto, 2015). Another advantage of a questionnaire is that it enables in the collection of data without requiring the researcher to be physically present through the use of various methods such as online platform (Rowley, 2014). Questionnaires are also appropriate in the study because they guaranteed anonymity of the respondents, by not requiring them to meet with the researcher or to indicate their names in the questionnaire Furthermore, the survey helped in determining perspectives and opinions on the ERP implementation process. The secondary data is employed from the organization reports on the ERP user 's information and other available sources.

3.5. Population and Sample Design

3.5.1. Target Population

Population is the entire set of people, things or events that meets the criteria for inclusion of the study (Sekeran, 2003). In this case, employees who are working on ERP system in different departments at Ethio-Telecom, Central North Regional office used as the population of the study.

3.5.2. Sampling Frame

The sampling frame is a subset of the population list of all employees engaged in procurement activities at Ethio-Telecom CNR. The sample was drawn via census method from the total staff of Ethio telecom working in the region having direct engagement with ERP system based procurement.

3.5.3. Sample Size and Technique

The researcher was used the following sample size determination formula to determine the sample size of the population in ethio telecom, CNR regional office. In this study the total population which is 190 staffs targeted as entirely in censuses method and only 128 were responded to this study.

3.6. Data Collection Tools and Instruments

The choice of data analysis tools for the study thesis focusing on Ethio-Telecom depends on the nature of the research and the type of data to be collected.

Surveys, interviews, document analysis tools were approached through administering surveys, conducting interviews, and analyzing relevant documents. Using Qualitative Data Analysis and approach Tools designed for qualitative and quantitative data analysis, allowing coding, categorizing, and analyzing themes within textual or visual data. They facilitate a systematic approach to exploring the complexities of user experiences, challenges, and opportunities, and thematically and case study analyzing to identify and analyze themes within open-ended responses from surveys and interviews. This approach allows for a nuanced exploration of participants' perspectives. Using a case study methodology to analyze the implementation of ERP by Ethio Telecom. This qualitative method involves an in-depth examination of a specific case to derive insights into strategies, challenges, and outcomes.

3.6.1 Data analysis and Interpretation

After data collection, the filled and returned questionnaires were edited for completeness, coding and entries made into Statistical package for social sciences (SPSS version 20). Coding is technical process where raw data are transformed into easily tabulated form by way of assigning symbols. The data was analyzed and presented quantitatively by using tools like percent, tables, frequency, standard deviation and mean and others to facilitate the interpretation of the results of the data. Both descriptive and inferential statistical techniques were applied to analyze the data. Descriptive statistics such as mean, frequency, percent and standard deviation was employed to present the responses which were obtained from the respondents. Statistical Package for Social Sciences version 20.0 was adopted to further analyze the data. Also tables were used for data presentation. Correlation was used to test the strength and direction of the relationship between the variables. Regression analysis was

used to test the effect of the independent variables (ERP system) on dependent variable (organizational performance). It was also employed to test the hypotheses. Multiple regressions also employed to establish how well the independent variables internal process, employee management, inventory management, information system, and organizational business value and decision making predict the dependent variable - organizational performance. The researcher therefore used multiple regressions (Field, (2009)

3.7. Regression equation

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + e$$

Where: Y = organizational Performance

α = Constant

$\beta_1 - \beta_6$ = Coefficient of Independent variables X_1 = internal process

X_2 = inventory management X_3 = employee management X_4 = information system

X_5 = organizational business value X_6 = decision making

e = Error term (Residual)

3.8. Reliability and Validity

3.8.1. Reliability

The reliability of a measure is an indication of the stability and consistency with which the instrument measures the concept and helps to assess the goodness of the measure. Examining the internal consistency of the test enables the researcher to determine which items are not consistent with the test in measuring the phenomenon under investigation. The object is to remove the inconsistent items and improve the internal consistency of the test. The researcher used Cronbach's Alpha as a measure of internal consistency. Cronbach's Alpha is a reliability coefficient that indicates how well items in a set are positively correlated to one another (Sekaran, 2003). Cronbach's Alpha reliability coefficient normally ranges between 0 and 1 and it affirms that normally, reliabilities of 0.7 range is considered acceptable and over 0.8 is good. In general, the closer Cronbach's Alpha coefficient is to 1.0 the greater the internal consistency of the items in the scale. Based upon the formula $\alpha = rk / (1 + (k - 1))$, where k is the number of items considered and r is the mean of the inter-item correlations.

Table 3.1 is a summary of the reliability test based on the Cronbach alpha coefficient for the five scales items in the survey instrument. The Cronbach alpha value was found to be 0.798 and is thus regarded as a good tool to measure the intended issue.

Table 3.1: Summary of Reliability Test from Employee Responses on Scale Items.

No.	Variables	No. of items	Cronbach's alpha
1	Internal process	5	.798
2	Inventory management	5	.816
3	Information system	6	.756
4	Decision making	5	.813
5	Employee management	6	.808
6	Organizational business value	5	.794
7	ERP and Organizational performance	6	.799
	Total	38	.798

Source: survey data, 2024

The responses of respondents were scored and the reliability of the tool was determined using Cronbach's Alpha. The result indicated that the value of Cronbach's alpha equals to 0.798 proving that the tool is indeed reliable (Sekaran, 2003). Thus, it is considered as good.

3.8.2. Validity

Validity on the other hand is aimed at whether the tools are truly measuring what they intended to measure (Kothari, 2007). Most relevantly, the validity of the tool was evaluated by the researcher's advisor. Faux (2010) asserts that an effective and practical approach to pretesting questionnaire instruments is to ensure that the questionnaire is understood by participants. Pilot study was done to test whether the tools truly measure what they intended to measure (Kothari, 2007). Validity of the tool was made by piloting the questionnaires before a comprehensive exercise of data collection to see if the tool can measure what it is supposed to measure from different respondents by distributing 15 questionnaires to the sample of the study. So it was found to obtain that the questionnaire measured what it was intended to measure. Furthermore validity of the study was measured by the researcher's advisor.

3.9. Ethical Consideration

Ethical issues in this research is concerned with maintaining confidentiality about the information that the researcher gathered from respondents, using data for academic purpose only and ensuring that the respondents personality would not exploited. In this context the researcher have maintained all ethical considerations, code of conduct and conventions with regard to obtaining the consent of the respondents, acknowledging all sources and materials used as a reference, keeping the confidentiality of the respondent's response and obtaining permission from the company to carry out the study.

CHAPTER FOUR

RESULTS AND DISCUSSION

4.1 Introduction

This chapter deals with the data presentation, interpretation and analysis of the study. The chapter comprised of two sections. The first is background of the respondents showing sex, age group, level of education, work experience, and position of respondents using cross tabulation and the second part deals with major components on the Effects of Enterprise Resource Planning Implementation for Web Based Procurement on Organizational Performance by using tables and consisting of mean and standard deviation, through SPSS version 20.

In order to make the collected data suitable for the analysis, all questionnaires were screened for completeness. All returned incomplete questionnaires were considered as errors and ignored from the data. But on this study all distributed questioners were returned or collected a total of 128. Therefore, all 128 questionnaires were used for further analysis.

4.2 Demographic Characteristics of Respondents

The first part of the questionnaire consists of the demographic information of the participants. This part of the questionnaire requested a limited amount of information related to personal and professional demographic characteristics of respondents. The table below shows the demographic characteristics of the respondents like Sex, Age, Education status, department, Work Experience and position in the organization. The data collected from the respondents were analyzed as follows.

Table 4.1 Background of Respondents

Variable	Variable Categories	Frequency	Percentage
Sex	Male	72	56.2
	Female	56	43.8
	Total	128	100
Age	<=25	0	0
	26-30	61	47.7
	31-40	41	32.0
	41 and above	26	20.3
	Total	128	100
Educational Level	Diploma	0	0
	BA/BSC	83	64.8
	Master	44	34.4
	Above master	1	.8
	Total	128	100
Work Experience	<=5	21	16.4
	6-10	71	55.5
	11-15	36	28.1
	Total	128	100
Division	Finance	20	15.6
	Human resources	24	18.8
	Logistics	10	7.8
	Production	20	15.6
	Techniques	5	3.9
	Quality	12	9.4
	Procurement	34	26.6
	Sales	3	2.3
	Total	128	100

Position	Supervisor	29	22.7
	Manager	12	9.4
	Employer	87	68.0
	Total	128	100

According to table 4.1 indicates that 56.2 percent of the respondent is male and the rest 43.8 percent of the respondents were female employees of the organization. As shows in the age category of respondents the composition of employees in the organization shows that all age groups are included and most of which are experienced which in turn enable the organization makes successful in implementation of the enterprise resource planning system adoption. The data exhibited in the table above regarding the education level of the respondents, shows that 64.8 percent were degree holder, 34.4 percent of the respondents were master degree, and 1.2 percent were above degree, representing the overall demographic characteristics of the employees in the organization. The highest proportion (98.8%) in educational status covers first degree and masters who help to improve organizational performance up on adopting the enterprise resource planning (ERP) system. Regarding respondents with an experience of years less than five 16.4 percent, six up to ten 55.5 percent and eleven up to fifteen 28.1 percent working on the company. Employees with such experiences have made significant contributions to the implementation and success of the ERP system in ethio telecom CNR. The least percentage (16.4%) is covers the service year having below five years. This proportion indicates that the organization contains younger employees who are getting relevant experiences from their senior staff of the department in the organization who can then succeed them in the near future and can sustain the ERP implementation in ethio telecom. Among different users of ERP in various department, procurement section was the highest usage of ERP which is 26. 6 present. Almost all department is used ERP for their day to day activities.

4.3. The Roles of ERP system in organizational business value

It measures of how well an organization achieves its strategic objectives and operational goals, often assessed through key performance indicators (KPIs) and other relevant metrics.

Table 4.2. Mean and standard deviation of organizational business value

The table shows the perceptions of respondents on ERP for web-based procurement

1, Strongly Disagree=SDA, 2, Disagree= DA, 3, Neutral=NEU, 4, Agree =AG 5,Strongly Agree=SA

Statements/items	N=128	frequency	Percent	Mean	Std. Deviation
ERP for web-based procurement helps in reduction of operational and administrative cost at Ethio-Telecom.	SDA			3.98	.704
	DA				
	NEU	33	25.8		
	AG	65	50.8		
	SA	30	23.4		
ERP for web-based procurement enables control of financial flows in the organization	SDA			3.98	.704
	DA				
	NEU	33	25.8		
	AG	65	50.8		
	SA	30	23.4		
ERP for web-based procurement system can enhance responsiveness at Ethio-Telecom	SDA			4.51	.502
	DA				
	NEU				
	AG	63	49.2		
	SA	65	50.8		
ERP for web-based procurement system creates competitive advantage at Ethio-Telecom	SDA			4.26	.439
	DA				
	NEU				
	AG	95	74.2		
	SA	33	25.8		
ERP for web-based procurement provides clear financial information to external parties	SDA			4.74	.439
	DA				
	NEU				
	AG	32	25		
	SA	96	75		
Overall mean and SD.					

Source: survey data, 2024

Table 4.2 shows that, among the questions forwarded to the study respondents, 50.8 percent of them are agreed and 23.4 percent of the respondents were strongly agreed on the statement ERP for web based procurement helps in reduction of operation and administrative cost at ethio telecom CNR. This means that ERP system helps an organization by reducing operational and administrative costs. In other sense, organizational business

value is affected positively by the adoption of enterprise resource planning system in ethio telecom CNR. Regarding ERP for web based procurement enables control of financial flows in the organization is also 50.8 percent of the respondents agreed and 23.4 percent were strongly agreed the remain 25.8 percent is neutral. 50.8 percent of the respondent feedback were ERP web based procurement system can enhance responsiveness at ethio telecom CNR and 49.2 percent also agreed.

Overall mean and SD which is (3.98 & .704) ERP helps in making the time management and leave administration simple and easily manageable. Relative to the above four variables, the role of enterprise resource planning system on organizational business value recorded low mean scores. Among the five questions the highest mean was recorded by “ ERP provide clear financial information to external parties” (Mean=4.74 and SD=0.43). This means tangible and accurate financial statement recorded on the system due to this any auditors can get the information easily.

In general, according to the data analysis report (table 4.2) the role of enterprise resource planning web based procurement system on organizational business value have substantial role in ethio telecom. The result somewhat opposes literatures. The business value of ERP systems is achieving recognition among many companies. The industry value of ERP systems is achieving recognition among both large firms and SMEs. Between the years 1997-2007, organizations spent beyond 70 billion US dollar on ERP system all over the world (Welch & Kordysh, 2007).

4.4 The Roles of ERP system in Inventory Management

One of the research variables was inventory management. In this section the role of enterprise resource planning in inventory management was discussed. Respondents were asked to indicate the extent to which they agree with relevant questions with respect to inventory management using a five-point Likert scale; strongly disagree, disagree, neither agree nor disagree(neutral), agree, strongly agree. A detailed descriptive of the assessment is indicated in table below.

Table 4.3. Mean and standard deviation of inventory management

The table shows the perceptions of respondents on ERP for web-based procurement in inventory management. 1, Strongly Disagree=SDA, 2, Disagree= DA, 3, Neutral=NEU, 4, Agree =AG 5,Strongly Agree=SA

Statements/items	N=128	frequency	Percent	Mean	Std. Deviation
ERP for web-based procurement system minimizes labor intensive system at Ethio-Telecom	SDA			3.71	.824
	DA				
	NEU	31	24.2		
	AG	67	52.4		
	SA	30	23.4		
ERP for web-based procurement system can save time and cost in Ethio-Telecom	SDA			4.48	.501
	DA				
	NEU				
	AG	67	52.3		
	SA	61	47.7		
ERP for web-based procurement helps inventory planning and scheduling in Ethio-Telecom	SDA			3.29	.824
	DA	30	23.4		
	NEU	31	24.2		
	AG	67	52.3		
	SA				
ERP for web-based procurement helps in Real-time access to inventory turnover in Ethio-Telecom	SDA			3.73	.443
	DA				
	NEU	34	26.6		
	AG	94	73.4		
	SA				
Inventory management helps in effective stores management of Ethio-Telecom	SDA			4.74	.439
	DA				
	NEU				
	AG	33	25.8		
	SA	95	74.2		

Source, survey data 2024

Items have measured in terms of frequency distribution, percent, mean and standard deviation. Based on the results, each item has been explained as depicted below: As explained in table 4.3, for the statement of ERP helps inventory planning and scheduling in ethio telecom, 33(25.8%) of the respondents agreed and 95 (74.2%)

of the respondents were strongly agreed. Thus, the result showed that deliveries which are timely, undamaged, furthermore, that contain the specific amounts, items, and delivery documentation just show up to offices 40 to 60 percent of the time (Sahin, 2004). The availability of automated, timely, and relevant data can lead to improved reliability of inventory status, better management of quality problems, improved compliance to regulations, efficient product recalls, and reduced budget redundancies of assets. The role of ERP technology on inventory management extends beyond continuous review. As described in table 4.3, the respondents were agreed on the statement ERP system minimizes labor intensive system at ethiot eleocm CNR” (mean=3.71 and SD=0.82). This indicates that majority of the respondents regarding this statement have a good perception on the roles of ERP system on inventory management in minimizing labor intensive system in the company which in turn can have an effect on organizational performance which will be discussed latter. This implies that enterprise resource planning (ERP) has a great role on inventory management especially in minimizing cost and saving time in the organization being studied. The other important question provided to the respondents under inventory management was “enterprise resource planning (ERP) system helps inventory planning and scheduling in ethio telecom CNR. For this question, majority of the respondents (Mean=4.48 and SD=0.501) agreed that enterprise resource planning (ERP) web based procurement plays an important role on inventory management in inventory planning and scheduling in the organization which could also play an instrumental role on the performance of ethio telecom CNR. As demonstrated in table 4.3, for the statement ERP helps in real-time access to inventory turnover in ethiotelecom CNR many of the respondents replied this variable is an important variable in improving organizational performance 73.4 percent were strongly agreed. Many of the respondents agreed that enterprise resource planning (ERP) system plays a prominent role on inventory management; specifically, it helps to realize real-time access to inventory turnover in ethiotelecom. Furthermore, Research explain that deliveries which are timely, undamaged, furthermore, that contain the specific amounts, items, and delivery documentation just show up to offices 40 to 60 percent of the time (Sahin, 2004). The availability of automated, timely, and relevant data can lead to improved reliability of inventory status, better management of quality problems, improved compliance to regulations, efficient product recalls, and reduced budget redundancies of assets.

4.5. The Roles of ERP system in Employee Management

In this section, perception of respondents on each items of the relationship between ERP system & employee management and organizational performance was discussed. Consequently, the respondents were questioned to show the extent to which they agreed to statements relating to the roles of ERP system and organizational

performance undertaken by the company on five-point Likert scale (1=Strongly disagree – 5= Strongly agree) a mean of above 3 is regarded to measure satisfaction and a mean of below 3 is to measure dissatisfaction at the test variables.

Table 4.4. Mean and standard deviation of Employee management

The table shows the perceptions of respondents on ERP for web-based procurement in Employee management

1, Strongly Disagree=SDA, 2, Disagree= DA, 3, Neutral=NEU, 4, Agree =AG 5,Strongly Agree=SA

Statements/items	N=128	frequency	Percent	Mean	Std. Deviation
ERP for web-based procurement system helps the managers to control the day to day activities of the employees in Ethio-Telecom.	SDA			3.74	.439
	DA				
	NEU				
	AG	33	25.8		
	SA	95	74.2		
ERP for web-based procurement system helps the managers to identify employees' performance	SDA			3.51	1.101
	DA	30	23.4		
	NEU	34	26.6		
	AG	33	23.8		
	SA	31	24.2		
ERP for web-based procurement system provides clear disciplinary performance procedures and feedback guidelines	SDA			3.29	.824
	DA	30	23.4		
	NEU	31	24.2		
	AG	67	52.3		
	SA				
ERP for web-based procurement helps in making the Time management and leave administration	SDA			3.77	.844
	DA				
	NEU	63	49.2		
	AG	31	24.2		
	SA	34	26.6		
Overall mean and SD.					

Source: survey data, 2024

As table 4.4 indicates that, among the total respondents of this study 74.2 percent were strongly agreed and the remain 25.8 percent response is agreed on the statement “ERP for web-based procurement system helps the managers to control the day to day activities of the employees in Ethio-Telecom. On the other hand, the least percentage was given to the statement “ERP for web-based procurement system helps the managers to identify employees’ performance” which means 30(23.4%) of respondents were disagreed on this statement. Most previous researcher deployed ERP web based procurement system helps the managers to control the day to day activities of the employees. ERP system produces accurate appraisal documentation to protect both the employee and employer.

The other important question forwarded to the respondents was “ERP for web based procurement system helps in making the time management and leave administration simple and easily manageable. In this case, the mean score value 3.77 shows that the respondents either have little information or unsure 63 (49.2 percent) respondent’s feedback is neutral, whether ERP system helps in making the time management and leave administration simple and easily manageable.

Furthermore, the statement “ERP for web based procurement system provides clear disciplinary performance procedures and feedback guidelines” was asked to the sample of the study resulting in a mean of 3.29 and a standard deviation of 0.824. Majority of respondents which is 52.3 percent were agreed on this statement. According to the result obtained above, the statement ‘ERP for web based procurement system provides clear disciplinary performance procedure and feedback guideline in ethio telecom CNR.

The descriptive analysis of the statement ‘ERP system helps the managers to identify employees’ performance in ethio telecom CNR with a mean score of 1.101. Performance monitoring of staff is another advantage of ERP system. This type of control brings useful time-sensitive information such as tracking a worker’s progress with an assigned task, identifying the other team members collaborating on the task, and storing any communication between the customers, suppliers, or staff. Also, employee monitoring ensures that suitable organization principles are being followed (Ramirez et al., 2010). While there is research taking note of the workforce's general aversion of checking, an ERP’s follow-up capabilities are less intrusive since they focus on employee productivity rather than tracking their physical location. Though further research is needed to provide evidence, Anand G. et al., (2009) noted the possibility in that ERPs can successfully fulfill continuous integration (CI) requirements and capture employee tacit knowledge and make easy bottom-up process enhancement ideas.

(Pearlson & Saunders, 2001) declared that business entity only stay competitive advantage arises from the knowledge and experience of employees who are able to direct that knowledge to business problems.

4.6. The Roles of ERP system in internal process

Internal process was one of the study variables under investigation. Accordingly, in this section the role of enterprise resource planning system in internal process was discussed. The study samples were asked to indicate the extent to which the respondents agree with relevant questions with respect to inventory management using a five-point Likert scale; strongly disagree, disagree, neutral, agree and strongly agree. A detailed analysis of the assessment is indicated in table below:

Table 4.5. Mean and standard deviation of Internal process

The table shows the perceptions of respondents on ERP for web-based procurement in Internal process 1, Strongly Disagree=SDA, 2, Disagree= DA, 3, Neutral=NEU, 4, Agree =AG 5,Strongly Agree=SA

Statements/items	N=128	frequency	Percent	Mean	Std. Deviation
ERP for web-based procurement system facilitates the integration among business units of Ethio-Telecom.	SDA			4.27	.443
	DA				
	NEU				
	AG	94	73.4		
	SA	34	26.6		
ERP for web-based procurement implementation facilitates internal process in Ethio-Telecom	SDA			4.50	.502
	DA				
	NEU				
	AG	64	50		
	SA	64	50		
ERP for web-based procurement implementation has positive effect on internal communication	SDA			3.76	.430
	DA				
	NEU	31			
	AG	97			
	SA				
ERP for web-based procurement automate and simplify processes across the organization	SDA			4.24	.430
	DA				
	NEU				
	AG	97	75.8		
	SA	31	24.2		
Overall mean and SD.					

Source: survey data, 2024

Table 4.5 presents the perceptions of respondents on ERP for web based procurement system facilitates the integration among business units of ethio telecom CNR as 94(73.4%) respondents are agreed on the mentioned questioned. The rest 34(26.6%) of them replied that strongly agreed.

In general, the result enabled the researcher to conclude this variable (internal Processes) is lead indicators where management intervention is possible to affect customer and financial outcomes (Bosilj & Spremic 2004). As shown in table 4.5, respondents reacted differently to the questions provided to them regarding the variable under investigation (internal process). This implies that the role of enterprise resource planning web based procurement system has important significance on internal process in the organization in improving internal communication process. Likewise, as per the table above, the statement ERP implementation facilitates internal process in ethiotelecom; (Mean=4.5 and SD=0.502). This indicates that enterprise resource planning (ERP) web based procurement system has a great role on internal process especially in facilitating internal process in the organization. The other important question raised to the respondents was to explain the extent to which “ERP for web based procurement system automate and simplify processes across the organization”. As the above table shows enterprise resource planning web based procurement system has an appreciable contribution to internal process in the organization in simplifying and automating processes across the organization and hence optimizing the organizational performance. Consequently, it is possible to deduce that the role of ERP system on internal process can lead to productivity of the organization. To summarize the study variable internal process; ERP for web based procurement system has essential roles in internal process in simplifying and automating processes across the organization, in facilitating internal process, improving internal communication process in the organization and hence optimizing the organizational performance. This finding is supported by different literatures; according to Gartner (2010), ERP systems provide firms with the ability to enhance internal process through the integration of all the activities and function areas of a company. According to Bosilj & Spremic (2004), internal processes are all the activities and key processes required in order for the company to excel at providing the value expected by the customers.

4.7. The Roles of ERP system in Decision Making

Regarding decision making, like the other variables discussed above, perception of respondents on each items of the relationship between ERP system & decision making and organizational performance was discussed. Subsequently, the respondents were asked to reply the extent to which they agreed to statements/questions

relating to the roles of ERP system on decision making resulting in organizational performance. The analysis and interpretation is discussed below:

Table 4.6. Mean and standard deviation of Decision making

The table shows the perceptions of respondents on ERP for web-based procurement in Decision making

1, Strongly Disagree=SDA, 2, Disagree= DA, 3, Neutral=NEU, 4, Agree =AG 5,Strongly Agree=SA

Statements/items	N=128	frequency	Percent	Mean	Std. Deviation
ERP for web-based procurement system enhances the quality of managerial decision-making process in Ethio-Telecom	SDA			3.53	.851
	DA	30	23.4		
	NEU				
	AG	98	76.6		
	SA				
ERP for web-based procurement system improves decision making processes in Ethio-Telecom	SDA			3.27	.443
	DA				
	NEU	4	3.12		
	AG	90	70.3		
	SA	34	26.6		
ERP for web-based procurement a wide range of analytical and reporting tools can help gain	SDA			3.75	1.072
	DA	31	24.2		
	NEU				
	AG	67	52.3		
	SA	30	23.4		
Overall mean and SD.					

Source: survey data, 2024

Table 4.6 shows the perceptions of respondents on roles of ERP system in decision making. Items have measured in terms of frequency distribution, percent, mean and standard deviation. Based on this, the statement of ERP for web based procurement system enhances the quality of managerial decision-making process in ethio telecom CNR, 98 or 76.6 percent of the respondents agreed and the rest 23.4 percent were disagreed.

This indicates that majority of the respondents regarding this statement have a good perception on the roles of ERP system on decision making in enhancing the quality of managerial decision making process in the company

which in turn can have an effect on organizational performance. Similarly, as per table 4.6, the statement ‘‘ERP for web based procurement helps to make the right decision and achieving organizational goals in ethio telecom CNR’’ majority of the respondents 90 or 70.3 percent replied that agreed on the statement and 30 or 26.6 percent also strongly agreed. This implies that enterprise resource planning system (ERP) has a role on decision making particularly in making the right decision and in achieving organizational goals in ethio telecom CNR. The other question raised to the respondents was ERP for web-based procurement a wide range of analytical and reporting tools can help gain 52.3percent of the respondent were agreed and 23.4 percent of the respondent also strongly agreed. For this this question 24.2 percent of the respondent replied that disagree. This implies asper the majority respondent feedback and logically ERP system enable the company real and accurate information when generating report. ERP easy-to-use tools to enable to work quickly and make smart, proactive decisions in ethio telecom. ERP a wide range of analytical and reporting tools can help gain insight into business performance’’ rated high by the respondents scoring a mean of 3.57.

To conclude this part, the roles of enterprise resource planning (ERP) for web based procurement system in decision making in ethio telecom CNR. Table 4.6 enabled the researcher to understand/conclude enterprise resource planning (ERP) system plays considerable role in decision making by enabling to work quickly and make smart and proactive decisions in the organization, by making the right decision and in achieving organizational goals and by enhancing the quality of managerial decision making process in ethio telecom. Various studies support these findings. Kelton et al., (2010) found that the implementation of ERP systems affects decision-making processes in various contexts. In addition, decision-making is an extremely information dependent process, one which make use of heavily from the stakeholders and incorporate managerial intelligence to ensure the realization of potentially effective decisions (Ucakturk & Villard , 2013). Nooriae (2012) challenges that decision-making is one of the major managerial functions and one with potential positive or negative consequences for organizational performance. It is suggested that this information-dependent attribute of decision-making process is what makes ERP systems important to it. As such, ability in decision-making separates a performing from a non-performing organization and a successful from unsuccessful organization. This means that any input that facilitates supplements or enhances the quality of managerial decision-making directly enhances performance (Zeng Y. et al., 2012).

4.8. The Roles of ERP system in information system

In this section, perception of respondents on each items of the relationship between ERP system & information system and organizational performance was discussed. Subsequently, the respondents were asked to show the degree to which they agreed to statements regarding the roles of ERP system and organizational performance carried out by the company on five-point Likert scale (1=Strongly disagree – 5= Strongly agree) a mean of above 3 is regarded to measure satisfaction and a mean of below 3 is to measure dissatisfaction at the test variables Table 4.7 Mean and standard deviation of information system.

Table 4.7. Mean and standard deviation of Information system

The table shows the perceptions of respondents on ERP for web-based procurement in Information system.

1, Strongly Disagree=SDA, 2, Disagree= DA, 3, Neutral=NEU, 4, Agree =AG 5,Strongly Agree=SA

Statements/items	N=128	frequency	Percent	Mean	Std. Deviation
ERP for web-based procurement system provides real time information	SDA			3.48	.878
	DA	33	25.8		
	NEU				
	AG	95	74.2		
	SA				
ERP for web-based procurement system provides accurate information	SDA	30	23.4	3.27	1.446
	DA				
	NEU	33	25.8		
	AG	35	27.3		
	SA	30	23.4		
ERP for web-based procurement system provides reliable information	SDA			3.99	.693
	DA				
	NEU	31	24.2		
	AG	67	52.3		
	SA	30	23.4		
ERP for web-based procurement system provides timely information	SDA			4.23	.425
	DA				
	NEU				
	AG	98	76.6		
	SA	30	23.4		
	SDA				
	DA				

The ERP for web-based procurement system facilities quick information retrieval and easily identify problems.	NEU	30	23.4	4.01	.693
	AG	67	52.3		
	SA	31	24.2		
ERP for web-based procurement helps the performance of the organization by providing streamlined information sharing between different functional units /departments of the organization	SDA			4.02	.704
	DA				
	NEU	30	23.4		
	AG	65	50.8		
	SA	33	25.8		
Overall mean and SD.					

Source: survey data, 2024

As table 4.7 shows that majority of the respondents 74.2 percent replied agreed on ERP system provides accurate and real time information in ethio telecom and the remain 25.8 percent were disagreed. The ERP system facilities quick information retrieval and easily identify problems in ethio telecom CNR.

ERP for web based procurement system helps the performance of the organization by providing accurate and streamlined information sharing between different functional units /departments of the organization majority of respondents replied that agreed and strongly agreed.

As depicted in table 4.7, majority of the respondents were agreed on the statement “ERP system provides accurate information in ethio telecom” (mean=3.27 and SD=0.87). This shows that many of the respondents concerning this statement have a good perception on the roles of ERP system on information system in the company which in turn can affect organizational performance of ethio telecom. ERP system provides real time information in ethio telecom” (mean=3.99 SD=0.69) shows that enterprise resource planning has an impact on information system in different conditions such as in providing real time information in the company. The data analysis showed that majority of the respondents agreed on the statement that enterprise resource planning plays an important role in the organization in facilitating quick information retrieval and easily identifying problems in related to web based procurement (Mean=4.01 and SD=0.69). So, it is possible to narrate that the role of enterprise resource planning system on employee information system which in turn can enhance the performance of the organization/ethio telecom. To recapitulate information system, enterprise resource planning system has an important role on information system and organizational performance in many aspects like providing accurate information, providing real time information, facilitating quick information retrieval and easily identifying problems, providing timely information and providing streamlined information sharing between different functional units /departments of the organization as the overall mean(Mean=4.02 and SD=

0.70) reveals majority of the study sample agreed that ERP plays an instrumental role on employee management which can also help the company to improve its organizational performance up on the adoption of enterprise resource planning system. The result of this variable is supported by different literatures as discussed herewith. In the view of (Iiavari 1991) an Information System is a collection of subsystems defined by either functional or organizational parameters that support decision making and control the organization. (Lucas 1981) highlights the fact that information technology is used to capture, transmit, store, retrieve, manipulate, or display information.

4.9. ERP system and Organizational Performance

In this section, perception of respondents on each items of the relationship between ERP system & organizational performance was discussed. To do so, respondents were asked to indicate the degree to which they agreed to statements relating to the roles of ERP system and organizational performance undertaken by the company on five-point Likert scale. This is well explained in the tables and narratives below.

Table 4.8. Mean and standard deviation of ERP and Organizational performance

The table shows the perceptions of respondents on ERP for web-based procurement in ERP and Organizational performance.

1, Strongly Disagree=SDA, 2, Disagree= DA, 3, Neutral=NEU, 4, Agree =AG 5,Strongly Agree=SA

Statements/items	N=128	frequency	Percent	Mean	Std. Deviation
Ethio-Telecom gives quality service after adopting the ERP for web-based procurement system.	SDA			3.73	.818
	DA				
	NEU	64	50.0		
	AG	34	26.6		
	SA	30	23.4		
Ethio-Telecom increases productivity after adopting the ERP for web-based procurement system.	SDA			4,02	.704
	DA				
	NEU	30	23.4		
	AG	65	50.8		
	SA	33	25.8		
Ethio-Telecom increase profitability after adopting the ERP for web-based procurement system.	SDA			4.26	.825
	DA				
	NEU				
	AG	94	73.4		
	SA	34	26.6		

Ethio-Telecom has taken the competitive advantage over its counter parts.	SDA			4.26	.825
	DA				
	NEU	31	24.2		
	AG	33	25.8		
	SA	64	50.0		
ERP for web-based procurement enables organizations to restructure business processes for accelerated organizations performance..	SDA			4.00	.000
	DA				
	NEU				
	AG	128	100		
	SA				
ERP for web-based procurement implementation has realized the expected goal and objective	SDA			3.98	.704
	DA				
	NEU	33	25.8		
	AG	65	50.8		
	SA	30	23.4		

Source; survey data 2024

To gain a better understanding of the survey data concerning ERP for web based procurement systems and organizational performance, respondents were asked to rate various enterprise resource planning practices related to organizational performance. From the results in table 4.8, they agreed that ERP procurement implementation has realized the expected goal and objective (M=3.98, SD=.70). Ethio telecom gives quality service after adopting the ERP web based procurement system (M=3.73, SD=.82). The analysis indicates that most of the target groups agreed that ethio telecom increases productivity after adopting the ERP system (M=4.02 and, SD=.70). Regarding whether ERP enables the organization to restructure business processes for accelerated organizations performance, the analysis indicates that most of them agree with the factor (M=4.00 SD=.01). The other important question forwarded to the target group was ethio telecom increase profitability after adopting the ERP system. Furthermore, respondents strongly agree with the statement ethio telecom CNR has taken the competitive advantage over its counter parts (M=4.26, SD=.83)

Table 4.8 enabled the researcher to conclude enterprise resource planning (ERP) web based procurement system plays significant role in organizational performance by realizing the expected goal and objective, increasing productivity after adopting the ERP system, increasing profitability after adopting the ERP system, attempting to take competitive advantage over its counter parts, enabling organizations to restructure business processes for accelerated organizations performance and giving quality service in the mining company.

From the overall mean and standard deviation, it is possible to deduce that the results are consistent with the finding of different researches as justified as follows. Implementation of the ERP system has led to better

outcomes (Chung *et al.*, 2007). These systems have provided organizations with tremendous benefits, such as increased productivity, enhanced access to accurate and timely information, improved workflow, decreased paper dependence, shared knowledge, tight control (Bhamangol *et al.*, 2011), and automated business processes by organizing and integrating departmental information (Monk, 2009).

4.10. Hypotheses testing

A multiple Regression model was used to predict the effects of ERP for web based procurement system on organizational performance.

4.10.1 The effect of internal process on organizational performance

H1: Internal process has significant effect on organizational performance in ethio telecom

From Table 4.11, the effect of internal process on organizational performance was significant in the model ($B = 0.342$, $\text{Exp}(B) = 0.321$, $p < 0.05$). The odds ratio of 0.321 means that units increase in internal process will lead to 0.321 times more likelihood of enhancing organizational performance. The hypothesis stating internal process has significant effect on organizational performance in ethio telecom CNR is thus accepted. This finding is supported by different literatures; according to Gartner (2010), ERP systems provide firms with the ability to enhance internal process through the integration of all the activities and function areas of a company. According to Bosilj & Spremic (2004), internal processes are all the activities and key processes required in order for the company to excel at providing the value expected by the customers. Internal Processes are lead indicators where management intervention is possible to affect customer and financial outcomes.

4.10.2 The effect of inventory management on organizational performance

H₂: Inventory management has significant effect on organizational performance in ethio telecom.

The hypothesis which states that inventory management has a significant effect on organizational performance in ethio telecom CNR is thus accepted as the p-value is found to be less than 0.05 ($P=0.000$). In other sense inventory management and organizational performance have positive relationship. a constant survey strategy supported by real-time automated updates decreases on- hand inventory needs, reduces the likelihood of having an inventory shortage, lowers the order frequency and harmonizing costs and reduces the likelihood of having an inventory shortage (Cakici et al., 2010). Furthermore, Research explain that deliveries which are timely, undamaged, furthermore, that contain the specific amounts, items, and delivery documentation just show up to offices 40 to 60 percent of the time (Sahin, 2004). The availability of automated, timely, and relevant data can lead to improved reliability of inventory status, better management of quality problems, improved compliance to regulations, efficient product recalls, and reduced budget redundancies of assets. The role of ERP technology on inventory management extends beyond continuous review.

4.10.3 The effect of employee management on organizational performance

H₃: employee management has significant effect on organizational performance in ethio telecom.

The hypothesis which states that employee management has a significant effect on organizational performance in ethio telecom is thus accepted as the p-value is found to be less than 0.05 ($P=0, 05$). In other sense employee management and organizational performance have positive relationship. a constant survey strategy supported by automated human resource system enables the effectiveness of E-recruitment and system based efficiently management. The role of ERP technology on employee management extends beyond continuous review. Because of manpower is one of the essential asset of all business company.

4.10.4 The effect of information system on organizational performance

H₄:-Information system has significant effect on organizational performance in ethio telecom.

Information system was another ERP system practices that significantly affected organizational performance ($B = 0.344$, and $P < 0.05$) which is p value =0.01. This means that a unit increase in information system results in increase (by 0.344 times) in the likelihood of improving organizational performance. Thus this hypothesis is accepted. Therefore, information system has a significant effect on organizational performance. This result is consistent with different empirical studies: - To increase productivity, business enterprises invest in information systems, bearing in mind the benefits and functionality of these systems (Ifinedo *et al.*,2010) and converting to ERP systems and turning to ERP systems to deal with changing environment and overcome limitations of legacy.

4.10.5. The effect of organization business value on organizational performance

H5:-Organizational business value has significant effect on organizational performance in ethio telecom. Organizational business value was another ERP system practices that significantly affected organizational performance ($B = 0.280$ and, $P < 0.05$) which is p value = 0.002. This means that a unit increase in organizational business performance results in increase (by 0.280 times) in the likelihood of improving organizational performance. Thus this hypothesis is accepted. Therefore, organizational business value has a significant effect on organizational performance.

4.10.6. The effect of Decision making on organizational performance

H6: Decision making has significant effect on organizational performance in ethio telecom Decision making was another ERP system practice that significantly influenced organizational performance ($B = 0.358$ and, $P < 0.05$) which is p value = 0.01. This means that a unit increase in decision making results in increase (by 0.358 times) in the likelihood of enhancing organizational performance. Thus this hypothesis is accepted. Therefore, decision making has a significant effect on organizational performance. Kelton *et al.*, (2010) found that the implementation of ERP systems affects decision-making processes in various contexts.

In addition, decision-making is an extremely information dependent process, one which make use of heavily from the stakeholders and incorporate managerial intelligence to ensure the realization of potentially effective decisions (Ucakturk & Villard, 2013). Nooriae (2012) challenges that decision-making is one of the major managerial functions and one with potential positive or negative consequences for organizational performance. It is suggested that this information- dependent attribute of decision-making process is what makes ERP systems important to it. As such, ability in decision-making separates a performing from a non-performing organization and a successful from unsuccessful organization. This means that any input that facilitates supplements or enhances the quality of managerial decision-making directly enhances performance (Zeng . et al., 2012). Thus, it is genuinely possible to generalize that this decision making and organizational performance are correlated positively, which means decision making affects organizational performance.

4.11. Inferential analysis

4.11.1. Results of regression

According to the table shown below, the result is presented under summary of the regression model; the result suggests that the model is very good in establishing the relationship between the dependent variables (organizational performance) and independent (inventory management, employee management, decision making, organizational business value, information system and internal process) variables. Summary of the regression correlation coefficient $R=0.869$ represent the correlation between organizational performance and the independent variables. R square represents the proportion of variance in the dependent variable which is explained by independent variables (0.756). Adjusted square ($R=0.748$) meaning that 74.8 % the variation of organizational performance is due to the predictors (inventory management, employee management, decision making, organizational business value, information system and internal process). The remaining 25.2% of variations on organizational performance are explained by other potential factors, meaning there are other variables adoption of the ERP System (may be like adaptation, customization, etc.) accounting for the variance in organizational performance which have not been included in this model

4.12. Assumptions of Multiple Regressions

Before conducting a regression analysis, the basic assumption tests for the mode must be carried out. This is a compulsory precondition in explaining the relationships between dependent and explanatory variables. The major assumptions like, normality distribution test, linearity, multi collinearity, homoscedasticity and autocorrelation must be checked and proved to be met reasonably well. Each test is explained below:

4.12.1. Normality Distribution Test

Normality focuses on the extent to which the sample data distributes according to normal distribution (Hair et al., 2010). The researcher used skewness and kurtosis to evaluate the normality of the observed items. Skewness is “a measure of the asymmetry of the probability distribution of a real-valued random variable”. On the other hand, kurtosis refers to “the peaked or flatness of the distribution compared to the normal distribution” (Landau and Everitt, 2003). Values of skewness can be positive, negative, or zero. A zero, Skewness value, indicates a perfectly symmetrical distribution, whilst a positive skewness value indicates that the tail on the right side is longer and a negative value refers to left- tailed. On the other hand, a kurtosis value is zero for normal distributions, whilst it is negative for flat distributions (low kurtosis) and a positive value for peaked distributions (high Kurtosis). Finally, to assure the accuracy of the normality test findings, tests of skewness and Kurtosis were conducted. These two tests were conducted in accordance with previous studies (Tay, 2006) in order to calculate the normality of the raw data.

4.12.2. Multi collinearity test

Multi collinearity exists when there is strong correlation between two or more predictors in a regression model (Saunders, Lewis, & Thornhill 2007). There should be no perfect linear relationship between two or more of the predictors. If there is a high degree of correlation between independent variables, we have a problem of what is commonly described as the problem of multi collinearity (Kothari, 2004; Field, 2006). Collinearity diagnostics on the variables as part of the multiple regression procedure is done using variance inflation factor (VIF) and tolerance statistics. Tolerance is an indicator of how much of the variability of the specified independent is not explained by the other independent variables in the model.

Table: -4.9. multi collinearity Test

Collinearity Statistics			
Model		Tolerance	VIF
1	(Constant)		
	Organizational business value	.597	2.011
	Internal process	.676	1.736
	Information system	.778	1.731
	Decision making	.691	1.610
	Inventory management	.746	1.831
	Employee management	.608	1.646

Source, survey data 2024

4.12.3. Homoscedasticity

The assumption of homoscedasticity refers to equal variance of errors across all levels of the independent variables (Osborne & Waters, 2002). This implies it requires even distribution of residual terms or homogeneity of error terms throughout the data. Homoscedasticity can be checked by visual examination of a plot of the standardized residuals by the regression standardized predicted value (Osborne & Waters, 2002). If the error terms are distributed randomly with no certain pattern, the problem is not detrimental for analysis. The

scatterplot in Fig 4.2 shows that the standardized residuals in this research are distributed evenly which shows that no violation of homoscedasticity.

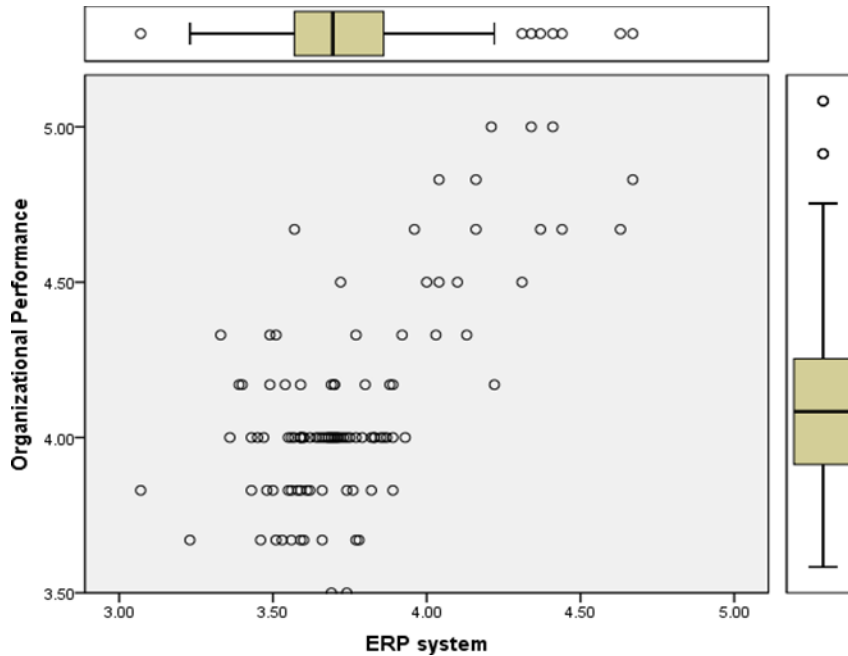


Fig 2: Scatterplot of standardized residuals

Source: survey data, 2024

4.12.4. Auto-correlation

Autocorrelation or independence of errors refers to the assumption that errors are independent of one another, implying that subjects are responding independently Stevens (2009). Durbin-Watson statistic can be used to test the assumption that our residuals are independent (or uncorrelated). This statistic can vary from 0 to 4. For this assumption to be met, the Durbin-Watson value needs to be close to 2 (Field, 2006). Values below 1 and above 3 are problematic and causes for concern. To check this assumption, we need to look at the Model Summary box presented below.

Table 4.10: Durbin Watson statistics

Model Summary					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.869a	.756	.748	.63875	2.044

a. Predictors: (Constant), organizational business value, inventory management, internal process, decision

making, employee management and information system.

Source: survey data, 2024

4.13. Regression coefficient

Table 4.11. Regression Coefficient

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1a	Inventory management	0.369	.593	25.720	1	0.000	.388
	Decision making	0.358	.751	12.523	1	0.010	.364
	Information system	0.344	.589	16.657	1	0.010	.331
	Organizational business value	0.280	.674	23.432	1	0.002	.212
	Employee management	0.371	.547	15.342	1	0.004	.317
	Internal process	0.342	.684	15.874	1	0.011	0.321
	Constant	3.589	3.742	36.448	1	.000	.000
a. Variable(s) entered on step 1: inventory management, decision making, information system, organizational business value, employee management and internal process.							

Source: survey data, 2024

The above regression analysis model table points out the relationship between independent and dependent variables. The Wald test ("Wald" column) is used to determine statistical significance for each of the independent variables. From these results it possible to deduce that inventory management (p=.000), decision making (p =.010), employee management (p =.053), organizational business value (p=0.055), information system (P=0.010) and internal process (p =.000) added significantly to the model/prediction. This table can be used to predict the average value of the dependent variable based on a one unit change in an independent variable when all other independent variables are kept constant. Depending on this information, for example, the table shows that, organizational performance increases by 0.388 in one-unit increase in inventory management. Similarly, organizational performance increases by 0.364 in one unit change in decision making keeping the other independent variables constant. Furthermore, one unit change in information system results in increasing organizational performance by 0.331. Likewise, organizational performance increases by 0.331 in one-unit increase in information system. Conversely, organizational performance decreases by 0.046 in one-unit increase in organizational business value and finally organizational performance changes inversely by 0.041 by one unit change in employee management.

In general, a regression was performed to establish the effects of inventory management, employee

management, decision making, organizational business value, information system and internal process on the performance of ethio telecom CNR. The regression model was statistically significant at $p < 0.05$. The model explained 74.8% of the variance in organizational performance. Increasing inventory management, decision making, employee management information system, organizational value and internal process associated with an increased likelihood of exhibiting organizational performance, but increasing organizational business value and employee management was associated with a reduction in the likelihood of increasing organizational performance.

4.14. Pearson's correlation analysis

Correlations

		Organizational business value	Inventory management	Employee management	Internal process	Decision making	Information system	ERP and Organizational performance
Organizational business value	Pearson Correlation	1						
	Sig. (2-tailed)	.000						
	N	128						
Inventory management	Pearson Correlation	.654**	1					
	Sig. (2-tailed)	.000						
	N	128	128					
Employee management	Pearson Correlation	.177*	.366**	1				
	Sig. (2-tailed)	.046	.000					
	N	128	128	128				
Internal process	Pearson Correlation	.510**	.310**	.071	1			
	Sig. (2-tailed)	.000	.000	.427				
	N	128	128	128	128			
Decision making	Pearson Correlation	.283**	.896**	.180*	.679**	1		
	Sig. (2-tailed)	.001	.000	.042	.000			
	N	128	128	128	128	128		
Information system	Pearson Correlation	.536**	.000	.578**	.756**	.416**	1	**

	Sig. (2-tailed)	.000	.996	.000	.000	.000		
	N	128	128	128	128	128	128	
ERP and Organizational performance	Pearson Correlation	.516**	.156	.390**	.890**	.575**	.959**	1
	Sig. (2-tailed)	.000	.079	.000	.000	.000	.000	
	N	128	128	128	128	128	128	128

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

As we have seen from the correlation matrix in the above table,

Information system was positively and significantly related to organizational performance ($r= 0.959$, $p< 0.01$). A positive correlation indicates that if the organization works better on information system, the performance of the organization will be enhanced in the same condition or if information system increases, organizational performance also increases in the same directions.

Internal process was positively and significantly related to organizational performance ($r=0.890$, $p < 0.01$). A positive correlation indicates that if a good decision is reached by the organization, organizational performance will be optimized or enhanced.

There is also a positive relationship between Decision making and organizational performance ($r=.575$, $P<0.01$). This signifies that if the organization provides reliable, accurate and real time information, organizational performance will be enhanced.

Likewise, Organizational business value ($r=0.516$, $p<0.01$) shows that there is a positive correlation with organizational performance.

Finally, the study revealed that the two variables inventory management (0.156) and employee management($r=0.481$) have positive but weaker relationship with organizational performance ($r=0.390$, $P<0.01$).

To generalize, there is strong, positive and significant relationship between the four independent variables (information system, decision making, internal process and Organizational business value) and the dependent variable (organizational performance)

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATION

5.1. Summary

Enterprise Resource Planning (ERP) in any organization when implemented adequately can greatly contribute to more customers, more orders, more profits, and customer satisfaction while at the same time creating a lean enterprise. The principal objective of this study was to investigate the effects of enterprise resource planning implementation for web based procurement on organizational performance of ethio telecom central north region. This chapter presents summary of the key findings of the study (comprises of results obtained from chapter four, purpose of the study, major findings, the methodology applied and other various points are discussed), conclusion and recommendation from the researcher based on the outcome of the research.

Enterprise Resource Planning (ERP) system is a computer information system that integrates all of a company's business operations and procedures. The purpose of ERP is designed to offer continuous, real-time information to all employees (Management Encyclopedia, 2006). Organizational performance is a method of measuring the success of the organization to ensure that it achieves its goals. Organizational performance measurement plays an important role in organizational growth. Through measuring performance, a firm can identify and track progress against organizational goals, seek opportunities for improvement, and compare performance against both internal and external standards, and formulate strategic activities through reviewing its performance (Hwang, 2011). Lee, Hong, & Katerattanakul (2004) divided organizational performance into two categories financial performance and non-financial performance. Following the accomplishment of this study, major findings obtained in the process are discussed. The researcher followed both descriptive and explanatory research design. This method was adopted in order to explain the relationship between the independent and dependent variables (effects of ERP system on organizational performance).

Data for the study was collected through close-ended and open ended questionnaire using the five point Likert scale. The target population for this study consists of employees who are working on ERP system in different departments at ethio telecom CNR. One hundred twenty eighty (128) respondents were targeted for the survey and hence the questionnaire was distributed and able to collected at all.

Descriptive statistics (percent, mean and standard deviation) used to interpret data for each item of the respective ERP practices based on mean, percent and standard deviation. Consequently, based on the overall

mean score of the respective variable under investigation, all of the study variables (independent variables: - inventory management, information system, employee management, organizational business value, internal process and decision making) had shown positive- a significant effect on organizational performance.

Inferential analysis (particularly correlation and regression analysis) was used to test the strength and direction of relationship between the independent variables and the dependent variable. Hence, the roles of ERP system on organizational performance in inventory management, employee management information system, organizational business value, internal process and decision making have a significant role on organizational performance in ethio telecom CNR. Regression analysis was used to test the hypotheses that were initially set by the researcher. Accordingly, the six hypotheses were accepted and there is no rejected as it had shown positive relationship with the dependent variable. Thus based on the results, it was recognized that inventory management, organizational business value, information system, employee management, internal process and decision making significantly predicted organizational performance. The role of ERP was analyzed towards lead time reduction in the procurement function. It was reported that ERP system contributes to improved customer service by providing the right product in the right place and at the right time. Further, the findings revealed that ERP system proactively pinpoints quality issues, providing the information required to increase production efficiency and also eliminate rework

5.2. Conclusion

An ERP system intended to affect a wide range of business processes and activities inside a company, and frequently implemented with high expectations for the advantages and transformation that the project will bring.

The study explored the effects of enterprise resource planning (ERP) for web based procurement on organizational performance. Using both descriptive and inferential analysis, the study identified the six ERP system practices that significantly affect the performance of the organization.

The influence of using ERP on service delivery focused on its significance on lead time reduction in the procurement function. The study revealed that among the respondents, majority strongly agreed that inventory management is very vital for an organization to be able to implement an ERP web based procurement system effectively. In addition, with the support of the employee management, the study revealed that procurement officers can better ensure the use of stock maintenance and control tools in the staffs of an organization as agreed upon by majority of respondents.

The study, after doing different analysis that the research objectives need, arrived and based on the major findings, the following conclusions were made

The study provides evidence that inventory management has a significant effect on organizational performance in ethio telecom as it has a positive and strong relationship with the dependent variable. Thus, inventory management helps ethio telecom CNR by minimizing labor intensive system in the company. The other important benefit of adopting ERP system in the case organization is improving decision making. ERP helps the organization by improving its decision making ability such as by making the right decisions and achieving organizational goals and by improving decision making processes. Adopting enterprise resource planning we based procurement system in ethio telecom CNR could also help the organization by improving its internal process. As discussed earlier one of the practices of ERP system is internal process. Internal process helps the organization by automating and simplifying processes across the organization. The importance or the role of adopting enterprise resource planning system in the case organization is not limited to the benefits obtained from the above discussed practices; it has also another importance in deploying good information system. Accordingly, the implementation of information system helps the performance of the organization by providing streamlined information sharing between different functional units /departments, helps in providing accurate information, provides reliable and timely information, helps ethio telecom by facilitating quick information retrieval and easily identify problems. The outcome of all the above-mentioned benefits getting by adopting enterprise resource planning system leads to the organizational performance of the company under investigation; in this case is ethio telecom central north region.

5.3. Recommendation

It was reported that implementation of ERP require greater level of trust and information sharing. The study recommends that to effectively achieve the objective, there is need for high level of transparency in sharing quality information among the supply chain partners. This would boost the success of the role of ERP on web based procurement in reducing lead time hence service delivery.

- There is the need for ethio telecom CNR to build on the enterprise resource planning system practices (internal process, inventory management, employee management, organizational business value, decision making and information system) which had shown positive relationship with organizational performance and found to revealed have significant effect on the case organization understudy in ethio telecom.

- The researcher's further recommendation is that although the six variables found to be factors of the ERP system optimizing organizational performance, the respective overall mean score indicates there is a room to improve their effect by working hard in line with the goals of the organization, ethio telecom.
- The research focused only on ethio telecom CNR. So, other researchers have to carry out a research in other organizations that deployed ERP system. Methodologically, even if there are numerous practices of enterprise resource planning (ERP) system, the research was carried out the study focusing on the six ones (inventory management, decision making, internal process and information system, organizational business value and employee management.
- However, in Ethiopia there are no sufficient studies carried out on this title and area. It is therefore important that more researchers especially those in Ethiopia continue to study the area empirically. The researcher recommends that similar or related studies should be conducted in other sectors including manufacturing or even health sector among others. It was established that issues surrounding the adoption and implementation of ERP, EDI and stock management techniques are complex and can be expensive. The study recommended that more research should be conducted to clearly present measures that should be undertaken to encounter the challenges associated with successful implementation of various determinants of lead time reduction in an organization
- To realize all the benefits expected from the system, ethio telecom has to exert all its effort to utilize all the features of the system from the already procured license, so that the intervention of manual working methods can be highly minimized and efficiency of employees and company in general can be enhanced accordingly. Since the major purpose of Enterprise resource planning (ERP) system implementation is to reinforce the efforts and performance of employees towards the achievement of organizations goals and objectives, ethio telecom has to do a lot by delivering the required training programs for both end-user as well as super users to bring the required level of skills on the system.

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ANNEX A

Debre Berhan University

College of Business and Economics

Post Graduate Program MBA

A Questionnaire to be filled by Target Population

Dear Respondents: This questionnaire designed to conduct a research on the topic **“Effects of Enterprise Resource Planning Implementation for Web Based Procurement on Organizational Performance: The Case of Ethio Telecom.”** The purpose of the study is for the partial fulfillment of the requirement of MBA degree. For the successful accomplishment of the study, your response have key role by being a valuable input for the study.

The information that you provide is strictly confidential and ethical manner to be consumed/used only for academic purpose. Thus, you are kindly, requested to genuinely fill the questionnaire to your best knowledge of as a customer experience, personal point of view, and based on the now how to the implementation.

Rahel Zewdu

Mobile: +2519-25-76-48-68

E-mail:

Thank you in advance for your cooperation!

General Instructions

1. No need of writing your name.
2. Please fill the answer by putting “√” mark.
3. Please return the completed questionnaire as much as possible.
4. If you need further explanation, you can contact me through the address mentioned above.

PART I: General Information (Demographic Information) - Please put (√) in the box.

1. What is your gender?

A. Male B. Female

2. Age Group:

A. ≤ 25 B. 26 – 35 C. 36 – 40 D. 41 and above

3. Educational Status

Diploma BA/BSC Masters above Masters

Other, please specify _____

4. Your service year (Work Experience) :

A. ≤ 5 B. 6 – 10 C. 11 – 15 D. 16 – 20 E. 21 and above

5. In which department/division are you working in?

Finance Human Resources Logistics

Production Techniques Quality

Procurement Sales Other

6. The position you hold in the organization Staff

Supervisor Manager Officer Employee other, please specify _____

Part II

Please rate the degree of the effect of ERP implementation that affect organizational

Performance listed below by ticking (√).

1= Strongly Disagree=SDA, Disagree=DA, Neutral=NEU, Agree=AGU, Strongly Agree=

STATEMENT	SCALE				
	1	2	3	4	5
A, Organizational business value					
ERP for web-based procurement helps in reduction of operational and administrative cost at Ethio-Telecom					
ERP for web-based procurement enables control of financial flows in the organization					
ERP for web-based procurement system can enhance responsiveness at Ethio-Telecom					
ERP for web-based procurement system creates competitive advantage at Ethio-Telecom					
ERP for web-based procurement provides clear financial information to external parties					
B, Inventory management					
ERP for web-based procurement system minimizes labor intensive system at Ethio-Telecom					
ERP for web-based procurement system can save time and cost in Ethio-Telecom					
ERP for web-based procurement helps inventory planning and scheduling in Ethio-Telecom					
ERP for web-based procurement helps in Real-time access to inventory turnover in Ethio-Telecom					
Inventory management helps in effective stores management of Ethio-Telecom					

C, Employee management	1	2	3	4	5
ERP for web-based procurement system helps the managers to control the day to day activities of the employees in Ethio-Telecom					
ERP for web-based procurement system helps the managers to identify employees' performance					
ERP for web-based procurement system provides clear disciplinary performance procedures and feedback guidelines.					
ERP for web-based procurement helps in making the Time management and leave administration					
D, Internal process	1	2	3	4	5
ERP for web-based procurement system facilitates the integration among business units of Ethio-Telecom					
ERP for web-based procurement implementation facilitates internal process in Ethio-Telecom					
ERP for web-based procurement implementation has positive effect on internal communication					
ERP for web-based procurement automate and simplify processes across the organization					
E, Decision making	1	2	3	4	5
ERP for web-based procurement system enhances the quality of managerial decision-making process in Ethio-Telecom					
ERP for web-based procurement system improves decision making processes in Ethio-Telecom					
ERP for web-based procurement a wide range of analytical and reporting tools can help gain					
F, Information system	1	2	3	4	5
ERP for web-based procurement system provides real time information					

ERP for web-based procurement system provides accurate information					
ERP for web-based procurement system provides reliable information					
ERP for web-based procurement system provides timely information					
The ERP for web-based procurement system facilitates quick information retrieval and easily identify problems.					
ERP for web-based procurement helps the performance of the organization by providing streamlined information sharing between different functional units /departments of the organization					
G, ERP and Organizational performance	1	2	3	4	5
Ethio-Telecom gives quality service after adopting the ERP for web-based procurement system.					
Ethio-Telecom increases productivity after adopting the ERP for web-based procurement system.					
Ethio-Telecom increase profitability after adopting the ERP for web-based procurement system.					
Ethio-Telecom has taken the competitive advantage over its counter parts.					
ERP for web-based procurement enables organizations to restructure business processes for accelerated organizations performance.					
ERP for web-based procurement implementation has realized the expected goal and objective					

