



**ADDIS ABABA UNIVERSITY COLLEGE OF BUSINESS AND
ECONOMICS SCHOOL OF COMMERCE DEPARTMENT OF
LOGISTICS AND SUPPLY CHAIN MANAGEMENT**

**CHALLENGES AND EFFECT OF IMPLEMENTING ENTERPRISE RESOURCE
PLANNING (ERP) ON ORGANIZATIONAL PERFORMANCE**

(A case study at Ethiopian Agricultural Transformation Agency)

BY:-FEVEN SOLOMON

JUNE, 2019

ADDIS ABABA, ETHIOPIA



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RESOURCE PLANNING (ERP) ON ORGANIZATIONAL PERFORMANCE**

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**A THESIS SUBMITTED TO THE ADDIS ABABA UNIVERSITY SCHOOL OF
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ADDIS ABABA UNIVERSITY SCHOOL OF COMMERCE GRADUATE STUDIES

**CHALLENGES AND EFFECT OF IMPLEMENTING ENTERPRISE RESOURCE
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Declaration

I, Feven Solomon, declare that this thesis is a result of my independent research work on the topic entitled “**Challenges and effect of implementing enterprise resource planning (ERP) on organizational performance at the case of Ethiopian Agricultural Transformation Agency.**” in partial fulfillment of the requirements for the Degree of Masters of Art in Logistics and Supply Chain Management at Addis Ababa University School of commerce. This work is original in nature and has not been presented for a degree in any other University. All the references are also properly recognized.

Feven Solomon

Signature

Date

Confirmation

This is to certify that Feven Solomon has carried out this thesis proposal on the topic entitled **“challenges and effect of implementing enterprise resource planning (ERP) on organizational performance at the case of Ethiopian Agricultural Transformation Agency”** under my supervision. Accordingly, I here assure that her work is appropriate and standard enough to be submitted for the partial fulfillment of the requirements for the award of the degree of Masters of Art in Logistics and Supply Chain Management.

Dr. Matiwos Ensermu (PhD)

Signature

Date

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List of Abbreviation and Acronyms

Acronyms Definition

ATA: - Agricultural Transformation Agency

ERP: - Enterprise Resource Planning

EIS: - Executive Information System

IS: - Information System

IT: -Information Technology

MRP: - Material Requirements Planning

MRPII: - Manufacturing Resource Planning

SAP: - Systems Applications Products in Data Processing

SOP: - Standard Operating Procedure

ABSTRACT

Enterprise Resource Planning (ERP) is a process of managing all resources of an enterprise in a coordinated manner. The system is considered as a powerful weapon to optimize performance of the organization. The objective of this study was to analyze the challenges in implementing ERP system and its effect on organizational performance of the Agricultural Transformation Agency (ATA) in Ethiopia. Analysis of effect of ERP implementation on Performance require determination of major components; Quality Management, Financial Management, Customer relationship Management, Inventory management, Procurement management, Logistics management and Human Resource Management. The problems of, longer lead and cycle times, high implementation costs, user resistance, lack of training and incentives, high inventory level, in ERP implementation were the critical factors that initiated this study for investigation. Both descriptive and an explanatory research design was employed with a sample of 184 employees through Sample survey that was 92% of the response rate. A questionnaire was used as a research tool for collecting data. Available data on these factors was gathered, formatted, processed and thoroughly checked for continuity and consistency. The ERP implementation and organizational performance data were infilled using the Five Point Likert-Scale while the Cronbach Alpha was used to check the data for reliability of measurement scale. The relationship between independent variables (ERP Adoption) and dependent variables (organizational Performance) are also cross-checked from Pearson correlation matrix. To predict organizational performance from ERP Adoption dimensions, such Quality Management, Financial Management, Customer relationship Management, Inventory management, procurement management, Logistics management and Human Resource Management, the multiple linear regression model was adopted. The analysis indicated that the independent variables, ERP Adoption with respect to the seven dimensions (Quality Management, Financial Management, Customer relationship Management, Inventory management, procurement management, Logistics management and Human Resource Management) explained 44 % variance on organizational performance. Out of the seven independent variables, five of them (Procurement management, financial management, customer relationship management Quality management and logistics management) were statistical significant with p-value of less than 0.05 whereas the remaining two (Inventory management, and Human Resource Management) were statistical insignificant with p-value greater than 0.05.; this implies that these dimensions of ERP Implementation are not at the optimal level in the organization. It is recommended that all the seven dimensions of ERP implementation (Quality Management Financial Management, Customer relationship Management, Inventory management, procurement management, Logistics management and Human Resource Management) should have to be integrated at the optimal level through system automation, framework agreement and relationship management in order to be an efficient and effective organizational performance.

Keyword: ERP Adoption, Quality Management, Financial Management, Customer relationship Management, Inventory management, procurement management, Logistics management and Human Resource Management and Organizational Performance

CHAPTER ONE

1. INTRODUCTION

1.1 Background of the study

How you manage your company's operations depends on the information you have. Information systems can offer more complete and more recent information allowing you to operate your company more efficiently. You can use information systems to gain a cost advantage over competitors or to differentiate yourself by offering better customer service. Sales data give you insights about what customers are buying and let you stock or produce items that are selling well. With guidance from the information system, you can streamline your operations. The development and use of Enterprise Resource Planning (ERP) is a Modern Phenomenon concerned with the use of appropriate information that will lead to better planning, better decision making and better results. (Davenport,2000).

Enterprise resource planning (ERP) is business management software usually a suite of integrated applications that a company can use to collect, store, manage and interpret data from many business activities. Which provides an integrated view of core business processes, often in real-time, using common data bases maintained by a database management system. ERP systems track business resources cash, raw materials, production capacity and the status of business commitments: orders, purchase orders, and payroll. However, ERP system development is different from traditional systems development.

ERP can improve quality and efficiency of the business. By keeping a company's internal business processes running smoothly, ERP can lead to better outputs that may benefit the company, such as in customer service and manufacturing, supports upper level management by providing information for decision making and creates a more agile company that adapts better to change and makes a company more flexible and less rigidly structured so organization components operate more cohesively, enhancing the business internally and externally.

ERP can improve data security. A common control system, such as the kind offered by ERP systems, allows organizations the ability to more easily ensure key company data is not compromised and provides increased opportunities for collaboration. Data takes many forms in the modern enterprise. Documents, files, forms, audio and video, emails. Often, each data medium

has its own mechanism for allowing collaboration. ERP provides a collaborative platform that lets employees spend more time collaborating on content rather than mastering the learning curve of communicating in various formats across distributed systems (Koch, 2006).

Companies have been developing information systems which meet their specific business requirements. These needed to develop a custom code which is a tedious process. Companies also used to have departmentalized systems, instead of corporate-wide enterprise systems, which cannot share information easily within the organization. This has resulted in data discrepancies which can cause time taking and inaccurate reports for decisions. This in turn affects organization level enterprise performance due to the absence of integrated information systems

The ATA Introduced Enterprise Resource Planning (ERP) to its employees in the mid-2015. Even though ERP have been implemented in different enterprise which are found in Ethiopia, the result is not as such satisfactory (Gebremdhin, 2017).

In today's age of globalization and competition, any firm demands companies to be effective and efficient. However, there are some challenges holding companies back. Difficulty in attaining accurate information, lack of applications that improve the existing business practices and bad interfaces are few of such challenges. (J. Umble, 2003)

Scholars also contend that an organization's practices ought to be lined up with its techniques to acquire unrivaled performance. In ERP Adoption context, it is contended that ERP adoption strategies ought to be lined up with firm strategy. Besides, it is recommended that there ought to be a vital fit among ERP Adoption strategies in ordered to tackle challenges in ERP implementation and increase organizational performance. Consequently, in this study, the contingent perspective is adopted to investigate the relationship between ERP adoption and organization performance by considering the levels of firm's ERP implementation dimension.

Hence, this paper assessed dimensions in ERP implementation and challenges in ERP implementation practice of Ethiopian Agricultural Transformation Agency and its implication on organizational performance in ensuring, efficiency and Effectiveness, Cost/benefit Analysis and in time completion rate.

1.2. Background of the organization

Ethiopia is a country of natural contrasts, with waterfalls and volcanic hot spring, dry desert lands and rich fertile soil. Agriculture is the foundation of the Ethiopian economy. It contributes approximately 46 percent to the national GDP and employs over 80 percent of the population.

In 2009, Ethiopia was in the final year of its five-year Plan for Accelerated and Sustained Development to End Poverty (PASDEP) and beginning to design its next five-year plan – the first Growth and Transformation Plan (GTP). It had also begun a rapid growth period with major gains in its agriculture sector. In the midst of these development, the late Prime Minister Meles had a fortuitous meeting with Melinda Gates, Co-Chair of the Bill & Melinda Gates Foundation where he asked for the Foundation's support in identifying an innovative way to catalyze not only the growth but of the transformation of Ethiopia's agriculture sector.

Based on these recommendations, in December 2010 the Council of Ministers in Ethiopia passed Regulation 198/2010 which established the Agricultural Transformation Agency (ATA) as the Secretariat of an Agricultural Transformation Council chaired by the Prime Minister (<http://www.ATA.gov.et>)

The ATA's mandate is articulated in the Ethiopian Council of Ministers Regulations No. 198/2010 and 380/2016, which specify four distinct **Strategic Goals** for the agency:

- To identify systemic constraints of agricultural development, through conducting studies, and recommend solutions in order to ensure sustainability and structural transformation
- To support implementation of recommended solutions
- To support the establishment of strong linkages among agricultural and related institutions and projects in order to ensure the effectiveness of agricultural development activities

To manage and lead the implementation of specific solutions as described above the Agricultural transformation Agency was Established.

1.3. Statement of the Problem

It is worth noting that lack of alignment between investments in Information Technology (IT) and business strategy is a major reason why most organizations fail to realize fully the benefits of large scale systems like ERP system (Reich and Benbasat, 1996). Many Organizations invest in ICT systems with the aim of improving organizational performance. ERP is one of ICT management software that allows an organization to use a system of integrated applications to manage the business and automate many back office functions related to technology, services and human resource. In different studies across countries it was identified that the major challenges of implementing ERP system were user resistance, lack of top management support, ineffective communication, inadequate resource allocations, organizational culture, high implementation costs, lack of training and incentives to the champions of the system. From another study it was also observed that some of the challenges related to ERP implementation and organizational performance were inability to provide real time information to customers, longer production cycle, and not in time completion rates (Chien, 2007). (Hall, 2012) in his research stated that ERP systems are expensive, huge and complex systems that warrant careful planning and execution for successful adoption. He associated ERP system with Rogers's theory of diffusion of innovations. In ATA since implementation of the ERP system, it has faced different challenges which made full implementation to take longer time. In addition, the effect of implementing ERP on organizational performance hasn't been studied plus as per the knowledge of the researcher there is no study that assess the extents and dimensions of ERP implementation and their effect in agricultural sectors in Ethiopia.

The problem is that currently employed ERP system have faced different challenges and is not known whether it is yielding the planned results in terms of quality, time and service levels in the desired level. The purpose of this thesis is to identify the reasons for such hitches and to highlight the theoretical frameworks which could improve organizational performance especially in terms of service time and quality level in the future.

This researcher was therefore motivated by the need to unravel the challenges in implementing ERP system and the performance of a firms which adopt ERP in the Agricultural sector. Most scholars have concentrated on drivers and effectiveness of ERP adoption and less emphasis on understanding the effect of implementing ERP on organizational performance plus, considering most of studies on challenges in ERP implementation are contextualized in developed countries

and that there are no previous studies under this topic in Ethiopian Agricultural sector. The tremendous amount of expenditures, capabilities and efforts allocated on ERP projects, high failure ration of ERP implementation and the importance of the lesson to the implementation in ATA ; Therefore, this study explored the extent of ERP implementation practices, the relationship between ERP implementation and organizational performance, and the Effect of ERP implementation on organizational performance in the Ethiopian Agricultural Transformation Agency (ATA) respectively and to bridge those gaps of the ERP implementation in this organization and finally suggest relevant recommendations.

1.4. Basic Research Question

The basic research questions of the paper are

- What kind of challenges does ATA face when implementing the ERP system?
- What is the relation between ERP implementation & organizational performance?
- What effects does implementing ERP have on organizational performance?

1.5. Objective of the Study

1.5.1 General Objectives

The objective of this study is to assess the challenges that an organization face by implementing ERP & to evaluate the effect of implementing ERP on organizations performance of Ethiopian Agricultural Transformation Agency(ATA)

1.5.2 Specific Objectives

Specific objectives of the research include:

- To examine the challenges that an organization face by implementing ERP
- To find out the relationship between ERP implementation and organizational performance with respect to Quality Management, Financial Management, Customer relationship Management, inventory management, procure ment management, Logistics management and Human Resource Management
- To assess effect of ERP Implementation on organization performance related to Quality Management, Financial Management, Customer relationship Management,

inventory management, procurement management, Logistics management and Human Resource Management and that of (Profitability, return on Investment, level of Accuracy, efficiency and effectiveness, Productivity, Cost/benefit Analysis and in time completion rate) organizational performance of the Ethiopian Agricultural Transformation Agency (ATA).

1.6. Significance of the study

This study is important in helping the organization to follow an appropriate ERP adoption Strategy like framework agreements in order to enhance performance of organizations and tackle the challenges in ERP implementation; this will increase efficiency as well as effectiveness that have had a drawback in performance achievement. It also helps students and other scholars to gain knowledge in terms of information attained during this study. Finally, the study is a boost to the academic body of knowledge, for researchers; while scholarly, it is very helpful as a reference material on the subject, useful for further study.

1.7. Scope of the Study

This research took Ethiopian Agricultural Transformation Agency as a case study, therefore the results of the study cannot be fully accepted as being completely relevant and applicable to all governmental, humanitarian and private companies in Ethiopia which Implemented the ERP system.; Because the study sample size and sampling procedure is limited, in addition the study particularly focuses on one governmental organization. However, some micro level of generalization for similar organization in the same service requirement might be possible(Krauth.et.al, 2005). The geographical scope of the study also only covers the Head office of the organization, Addis Ababa.

1.8. Limitation of the study

The study examines the challenges and organizational performance of Implementing ERP in the Agricultural Transformation Agency. The resource constraints have limited the researcher's investigation study subject along geographical scope as well as his dare to move beyond single organization.

1.9. Definition of terms

In the sub-sections here under, the researcher defined conceptual definition of Enterprise Resources planning (ERP) and organizational performance and also operational definition of key indicators of performance respectively.

1.9.1. Conceptual Definition

- **Enterprise Resource Planning System (ERP)** – This is a software system used by organizations that helps automate and integrate majority of its business processes, production and accessing information in a real time environment, and sharing common data and practices across the organization (Huntonet *al*, 2013).
- **Firm performance:** The concept of organizational performance is the comparison of an organization's goals and objectives with its actual performance in three distinct areas: financial performance, market performance, and shareholder value. Financial performance refers to an organization's results with regard to return on investment and return on assets. The market performance refers to a company's ability to make and distribute their outputs in the most cost effective way and to set a price that returns a reasonable amount to suppliers. In addition, market performance refers to the ability of a company to meet the demands and expectations of consumers regarding the good or service produced. Some organizations also measure market performance with regard to how great a share of the market they possess relative to their competitors, and some measure their ability to achieve social responsibility (or stewardship of the environment and responsibility to the community). Finally, shareholder value refers to the value of what a person holding shares in the firm possesses. These three measures determine whether an organization is meeting its goals (Jameadows 2017).

1.9.2. Operational Definition

- **Quality Management:** -Quality management is the act of overseeing all activities and tasks needed to maintain a desired level of excellence. This includes the determination of a quality policy, creating and implementing quality planning and assurance, and quality control and quality improvement (Eyong, 2010).
- **Financial Management:** -Financial Management means planning, organizing, directing and controlling the financial activities such as procurement and utilization of funds of the enterprise. It means applying general management principles to financial resources of the enterprise (Graeme, 2003).
- **Customer relationship Management:** -Customer relationship management (CRM) is the combination of practices, strategies and technologies that companies use to manage and analyze customer interactions and data throughout the customer lifecycle, with the goal of improving customer service relationships and assisting in customer retention and driving sales growth (Chang, S.I., Gable, G. Smythe, E. and Timbrell, G., 2000).
- **Inventory Management:** -Inventory management is a component of supply chain management that involves supervising non-capitalized assets, or inventory, and stock items. Specifically, “inventory management supervises the flow of goods from manufacturers to warehouses and from these facilities to point of sale” (Goeun, 2013).
- **Procure ment management :** -Procurement Management Process. This Procurement Management process will help you to purchase goods and services from external suppliers. It gives you a complete procurement process and procurement procedures, which explain step-by-step, how to purchase from suppliers (Reimers, 2003)
- **Logistics management:** -Application of management principles to logistics operations for efficient and cost effective movement of goods and personnel (Reimers, 2003).
- **Human Resource Management:** -is the process of managing people in organizations in a structured and thorough manner (Beech, 2006-2007).

1.10. Organization of the study

The first chapter provided an introduction to this research. ERP overview, ERP implementation, challenges in ERP implementation, ERP implementation and organizational performance theories have been discussed; and the problem statement, research questions, and objectives of the research have been presented. This chapter provided a background to the research; the research theoretical and practical significance; scope and limitation of the study also adopted.

The second chapter is the literature review carried out under this research. It provides a detailed discussion of relevant theoretical arguments on challenges of ERP implementation, ERP Adoption (Quality Management, Financial Management, Customer relationship Management, Inventory management, Procurement management, Logistics management and Human Resource Management) and organizational performance. Illustrates the theoretical framework, which captures the research questions under investigation. The conceptual framework builds on the literature review carried out. Accordingly, the gaps in the literature will be identified and presented.

The third chapter is the methodology part that presents a discussion on the type and design for the proposed research especially adapted from the previous studies, the subject/participant of the study, the sources of the data, the data collection instruments forthcoming employed, the procedures of data collection and the method of data analysis.

The fourth chapter presents the result discussion and interpretation carried out under this research. This includes the data collected, managed and prepared for the initial descriptive analysis. This chapter also provides a discussion on the reliability and validity of the data. Lastly, the findings of the data descriptive analysis are also presented and discussed.

The fifth and last chapter includes summary, conclusion and recommendations. This chapter underlines the research theoretical and managerial contribution. It also presents a section on the research limitations and recommendations on the direction for future empirical studies (expanding the concepts investigated under this study)

CHAPTER TWO

2.REVIEW OF RELATED LITERATURES

2.1. Introduction

This chapter focuses on the literature review as conducted by the researcher. It includes a review of the various studies that have been conducted by other researchers relating to the need for ERP adoption, challenges in ERP adoption and the performance of Agricultural, commercial transport and Manufacturing Sectors. Among the areas reviewed include: ERP adoption, challenges in ERP adoption and the organization performance, the drivers of ERP adoption and the benefits of ERP adoption. The chapter also provides the research gaps identified, summary of literature review and a comprehensive conceptual framework.

2.2. Theoretical Framework

The theories for ERP adoption, an ERP overview, Challenges in adopting ERP, organizational performance and perspectives of ERP implementation have been reviewed in the following sub-topics of this section.

2.2.1 ERP Over view

Enterprise resource planning (ERP) is business management software usually a suite of integrated applications—that a company can use to collect, store, manage and interpret data from many businesses activities, including: Product planning, cost Manufacturing or service delivery Marketing and sales Inventory management Shipping and payment. ERP provides an integrated view of core business processes, often in real-time, using common databases maintained by a database management system. ERP systems track business resources cash, raw materials, production capacity and the status of business commitments: orders, purchase orders, and payroll. The applications that make up the system share data across the various departments that provide the data. ERP facilitates information flow between all business functions, and manages connections to outside stakeholders. Enterprise system software is a multi-billion-dollar industry that produces components that support a variety of business functions. IT investments have become the largest category of capital expenditure in United States-based businesses over the past decade. Though early ERP systems focused on large enterprises, smaller enterprises increasingly

use ERP systems. The ERP system is considered a vital organizational tool because it integrates varied organizational systems and facilitates error-free transactions and production. However, ERP system development is different from traditional systems development. ERP systems run on a variety of computer hardware and network configurations, typically using a database as an information repository.

Functional areas of ERP:

An ERP system covers the following common functional areas. In many ERP systems these are called and grouped together as *ERP modules*:

Financial accounting: General ledger, fixed asset, payables including vouchering, matching and payment, receivables cash application and collections, cash management, financial consolidation

Management accounting: Budgeting, costing, cost management, activity based costing

Human resources: Recruiting, training, rostering, payroll, benefits, 401K, diversity management, retirement, separation

Manufacturing: Engineering, bill of materials, work orders, scheduling, capacity, workflow management,

Quality control, manufacturing process, manufacturing projects, manufacturing flow, product life cycle management

Order Processing: Order to cash, order entry, credit checking, pricing, available to promise, inventory, shipping, sales analysis and reporting, sales commissioning.

Supply chain management: Supply chain planning, supplier scheduling, product configuration, order to cash, purchasing, inventory, claim processing, warehousing (receiving, put away, picking and packing).

Project management: Project planning, resource planning, project costing, work breakdown structure, billing, time and expense, performance units, activity management

Customer relationship management: Sales and marketing, commissions, service, customer contact, call center support - CRM systems are not always considered part of ERP systems but rather Business Support systems (BSS).

Data services: Various "self-service" interfaces for customers, suppliers and/or employees.

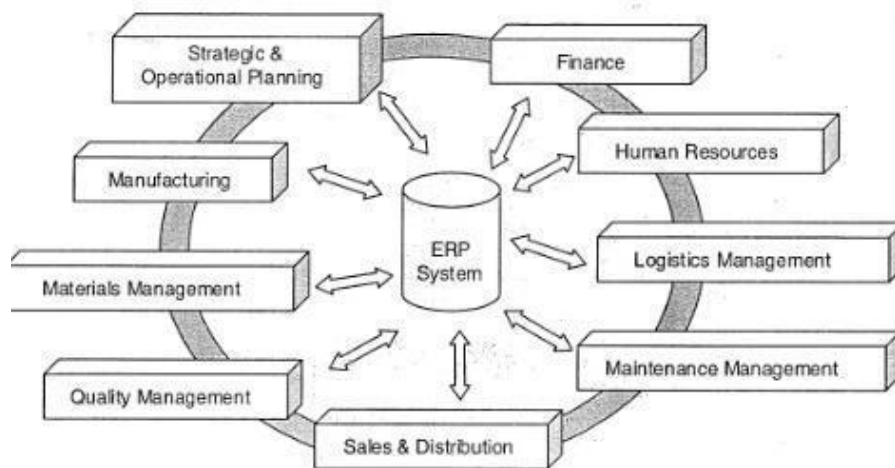


Figure1.1:Functional Areas of ERP

Benefits of ERP:

ERP can improve quality and efficiency of the business. By keeping a company's internal business processes running smoothly, ERP can lead to better outputs that may benefit the company, such as in customer service and manufacturing.

ERP supports upper level management by providing information for decision making.

ERP creates a more agile company that adapts better to change. ERP makes a company more flexible and less rigidly structured so organization components operate more cohesively, enhancing the business internally and externally.

ERP can improve data security. A common control system, such as the kind offered by ERP systems, allows organizations the ability to more easily ensure key company data is not compromised.

ERP provides increased opportunities for collaboration. Data takes many forms in the modern enterprise. Documents, files, forms, audio and video, emails. Often, each data medium has its own mechanism for allowing collaboration. ERP provides a collaborative platform that lets employees spend more time collaborating on content rather than mastering the learning curve of communicating in various formats across distributed systems.

Disadvantages of ERP:

Customization can be problematic. Compared to the best-of-breed approach, ERP can be seen as meeting an organization 's lowest common denominator needs, forcing the organization to find workarounds to meet unique demands.

Re-engineering business processes to fit the ERP system may damage competitiveness or divert focus from other critical activities.

- ERP can cost more than less integrated or less comprehensive solutions.
- High ERP switching costs can increase the ERP vendor's negotiating power, which can increase support, maintenance, and upgrade expenses.
- Overcoming resistance to sharing sensitive information between departments can divert management attention.
- Integration of truly independent businesses can create unnecessary dependencies.
- Extensive training requirements take resources from daily operations.
- Due to ERP's architecture (OLTP, On-Line Transaction Processing) ERP systems are not well suited for production planning and supply chain management (SCM).
- Harmonization of ERP systems can be a mammoth task (especially for big companies) and requires a lot of time, planning, and money.(Wei et al, 2006)

Additionally, it was mentioned by (Hitt et al, 2002) that ERP systems were one of the most important investments in the corporate use of information during 1990s. Also, ERP system could help firms integrate inventory data with financial, accounting, production, sales, and human resources, and achieve seamless data and business process integration in their back offices in a wide range of tangible and intangible, qualitative and quantitative, benefits at the operational, managerial, strategic and organizational levels (Langenwaller, 2000). (Wang et al, 2006) also argued that even though ERP systems had been successfully implemented, it did not mean that the “go-live” ERP system could guarantee the success of the ERP journey. In opposite, the post implementation of the ERP system became the real challenge for managing the firm resources

Besides the technical and financial aspects, it has been important to consider the non-technical management elements to assess the success of ERP system implementation, as well as change management. Most ERP system structures were divided into three levels, i.e. strategic, tactical, and operational levels (Umble et al., 2003). It is also reported that the factors influencing an ERP system deployment would be the process of selection and the consistent interfaces and supports that could reduce the implementation time. For that reason, the implementation of ERP system was typically a complex process, with many conditions and factors potentially influencing the implementation. However, the evaluation and performance monitoring of ERP system's implementation could bring the firms to the achievement of business goals and objectives (Soja, 2006). It also argued that there were five factors used to significantly measure the ERP systems expertise, i.e. ERP training, experience, time, experts, and auditor experience in order to ensure the performance audit of the ERP system (Bingi et al, 1999)

As (Federici, 2009) indicated that software errors or bugs could be the obstacles for the time delay in software process. Some behavioral difficulties in IT adoption would lead to the resistance to use the system, then, low productivity. Also, this would be consistent with the study. Furthermore, because of the limited resources; the acquisition of software licenses has not been for all users. The allocation of the time for the users in sharing the system would make the users uncomfortable. Also, the intention for making a gap for corruption would be one of the important dilemmas; hence it could not be easily found after the implementation phase has been completed. The user turnover could also have the effect on the ERP system since it could interrupt the process while new employee needs to replace the vacant position.

2.2.2. Drivers for ERP Adoption

The major driver for implementing ERP system is to make the company remain competitive in the industries they are involved. ERP systems do provide an excellent way to improve business efficiency by integrating data entry and retrieval across different business departments. Too often, employees in different departments are performing the same tasks because the systems in place are modular in nature and fail effectively to communicate with one another about what has been done and what remains to be done.

ERP can eliminate this problem, freeing up employees to perform new tasks, innovate new strategies and generally contribute more usefully to the company(Eyong, 2010).

The need to reduce costs of operations has been key motivation in companies embracing ERP systems. A lot of time is wasted by employees working in silos, where more time is spent repeating tasks, searching for documents and overlapping roles which ultimately affect the business achieving the desired results. According to the research that was done by (Burns, 2009) ,ERP enables companies to break down traditional organization's silos, replacing them with a tightly integrated horizontal structure in which strategy, organizational structure, process and technology are closely aligned.

ERP systems are often implemented not to replace legacy systems but as part of an organization's effort to modernize and differentiate itself(Reimers, 2003). The motivation of being unique in service delivery will help an organization have a name which may lead to ease differentiation especially in cases where organizations are producing similar goods and services. With ERP a few employees to track data, control business processes and enter information in storage. However, as a company grows, this approach becomes less and less practical. ERP is a great way that a business can grow without overwhelming its employees.

Companies implement ERP systems in order to link with external organizations or people. ERP helps integrate businesses from the inside, and it can do the same on the outside (Congden,2010). This can be done by integrating with other companies in order to provide Just in time (JIT) services in terms of inventory management where two systems talk to each and hence reduce on storage. (Stephen, W.C., and Eyong, B., 2010) proposed four main reasons businesses adopt ERP. First, to integrate activities to function more effectively. ERP systems are an excellent way to improve business efficiency by integrating data entry and retrieval across different business departments. Secondly, to reduce costs. Time is money, and the more time employees spend repeating tasks, searching for documents and overlapping each other's jobs, the less the business is achieving. Thirdly to facilitate firm growth. ERP is a great way that a business can grow without (Graeme, 2003)overwhelming its employees. Finally, to link with external organizations or people, ERP helps integrate businesses from the inside, and it can do the same on the outside. If the firm works with many partners, consultants or other businesses, ERP helps link them from location.

The six most common reasons cited by (Graeme, 2003) for ERP adoption are: need for a common platform, process improvement, data visibility, operating cost reductions, increased customer

responsiveness and improved decision making. According to (Chang, S.I., Gable, G. Smythe, E. and Timbrell, G., 2000) the need to increase efficiency is one of the most common reasons for adopting an ERP system. Organizations decide to implement ERP solutions for different reasons: the need to integrate data and systems, the need to improve the performance of current operations and the need to prevent a competitive disadvantage or a business risk from becoming critical (Oliver, D. and Romm, C. , 2000). According to (Somers and Nelson, 2004) three major business drivers for adoption of ERPs are improving productivity, satisfying customer demands and providing competitive advantage.

2.2.3. Challenges of Implementing ERP

ERP system has been one of the most popular business management systems, providing benefits of real-time capabilities and seamless communication for business in large organizations. However, not all ERP implementations have been successful. Since ERP implementation affects entire organizations such as process, people, and culture, there are a number of challenges that companies may encounter in implementing ERP systems as follows:

ERP implementations commonly have delayed an estimated schedule and overrun an initial budget (Ehie & Madsen, 2005); ERP implementations have sometimes failed to achieve the organization's targets and desired outcomes (Chatzoudes & Tsairidis, 2012, 2012); ERP implementation inevitably causes organizational changes, it requires the engagement of senior management from across the organization that is able to resolve conflicts.

Without the commitment of senior management, ERP implementation has a high risk of failure (Goeun, 2013). Furthermore, the literature indicates that 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 (Scott & Vessey, 2000).

The major problems of ERP implementation are not technologically related issues such as technological complexity, compatibility, standardization, but mostly it is about organization and human related issues like resistance to change, organizational culture, incompatible business processes, project mismanagement and top management commitment (Keilet *al*, 1998). 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 (Schwartz, 1998).

According to Dillard and (Yuthas, 2006) most multinational firms are using ERP and that more small and medium size companies have begun to adopt ERP. Despite promises to benefit companies and a substantial capital investment, not all ERP implementations have successful outcomes. ERP implementation affects entire organizations such as process, people, and culture. As a result, there are a number of challenges that companies encounter in its implementation process.

The major problems of ERP implementation are not technologically related issues such as technological compatibility, complexity and standardization but mostly organization and human related issues like, incompatible business processes, organizational culture and resistance to change, top management commitment and project mismanagement (Helo et al, 2008).

(Huang et al , 2004) presented the top ten risk factors causing ERP implementation failure in most organization include: failure to redesign business process, insufficient training of end-users, failure to get user support, ineffective communications with users, lack of senior manager commitment, lack of effective project management methodology, attempts to build bridges to legacy applications, misunderstanding of change requirements, composition of project team members and Conflicts between user departments. ERP implementation inevitably causes organizational changes, due to changes in business processes across an organization. There can be resistance to adopting the ERP system. ERP connects and integrates all business functions within the organization. Therefore, it is critical that management staff be committed, and particularly that they equip employees who are using business functions influenced by ERP with clear channels of communication (Goeun, 2013) He further state that lack of end-user training increases risks by creating confusion and inaccuracy, thereby decreasing user satisfaction and the credibility of the system.

The composition of the project team members plays a crucial role in ERP implementation process. Key members who will use the system need be the right people chosen from different departments to drive the agenda in the right direction (Goeun, 2013). ERP integrates diverse business functions

across an organization into one single system, necessitating a complex and integrated software package. If a project team does not clearly understand the changes in its organizational strategies, structure and processes from ERP adoption, then it will not be in a position to benefit from ERP's competitive advantage. In order to best implement ERP, project team members should be selected with a balance between members with business experience within the organization and external experts with specialties in ERP.

In project management, it is important to balance the scope, schedule and cost of the project (Lamers, 2002). However, in ERP implementations, both schedule and cost tend to be underestimated, while scope is overestimated (Aiken, 2002). ERP changes the entire organizational environment by reengineering the entire business process thus, after implementation; it is not easy to revise previous processes. Therefore, ERP implementations need accurate estimation, preparation with a holistic view and systematic management of the entire implementation process.

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human related issues like resistance to change, organizational culture, incompatible business processes, project mismanagement and top management commitment (Keilet *al*, 1998). 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 (Schwartz, 1998)

2.2.4.ERP Adoption and Organizational Performance

Organizational performance deal with the way an organizations thriving to attain both the market oriented and financial oriented goals. This definition covers both financial performance and operational performance. Previously, organizational performance has been evaluated by many re searches from financial and market criteria perspectives, such as return on investment (ROI), market share, profit margin on sales, the growth of ROI, the growth of sales, the growth of market share, and overall competitive position. This study is thought to habit both financial and non-financial indicators to measure the organizational performance. A constructive relationship among SCI practices and the organizational performance have been confirmed by several studies. (Wijetunge, 2016).

A journal of the literature on industry and organizational performance recommends an extensive kind of views concerning firm performance. Chen and Paulraj (2004a) claimed that financial performance should be the foremost idea of enterprise performance since the principal objective of a business is to create profits for shareholders, and to save life in case of humanitarian organizations. The idea of financial performance has been recycled broadly as a basic theory of organizational performance. But, other scholars have stated out their strict ions of merely trusting on financial performance in SCs. For instance, identified that a statistical performance idea may not define a system's performance sufficiently and will be ambiguous and difficult to use for simple qualitative appraisals. (Huo, 2013)

While it is not within the range of this study to argument the qualities of every performance idea, given the difficulty of the performance idea matter, the researcher mostly follows one principle when we choose performance concepts, namely, a balanced approach. Such an approach, which uses a combination of qualitative and quantitative concepts (if possible) and a broader conceptualization of the performance idea, is important to present a perfect image of organizational performance, as it has been encouraged by various scholars (Gunasekaran *etal*., 2003)

In this study, the researcher uses two broad categories of performance concepts: financial and non-financial performance. And non-financial performance is further seen from two perspectives: Customer Oriented Performance which is defined as the organization's performance in serving its customers, that is, how the organization's performs for a key customer in areas of quality, flexibility, delivery, and so forth. Suppliers' Oriented Performance refers to the organization's perception of its key supplier's performance in serving the organization, such as the performance level of the key supplier as perceived by the organization in areas of quality, flexibility, delivery, and so on. While customer oriented performance and supplier oriented performance focus on the operational aspects of companies (Huo, 2013).

In a highly competitive global business environment, firms seek to improve or maintain their competitiveness by using information systems to improve customer service, shorten cycle times, and reduce cost. ERP systems provide many benefits to companies so they can meet changing expectations by providing accurate, timely, and integrated information to improve decision making (Hoecht, 2004).

Masini and Wassenhove, 2009)state that ERP systems have significant impact on organizational capabilities. ERP systems enable more accurate and timely information coordination, which reduces inventory and administrative costs and increases responsiveness to market demands. Reducing buffer inventory and lead times increase the efficiency and flexibility of the firm (Suwardy et al, 2003). ERP improves business performance of the organizations by implementing an efficient planning and control system that synchronizes planning of all processes through organizations (Shih-Wen Chien et al, 2007).

(Lozinsky, 1998)suggests that the rewards of a successful implementation are immense. He states that operating costs will be reduced improved access to information will make possible more agile decision making for better negotiating with customers and suppliers, with no need for rewriting reports; reliable figures will be available to analyze business performance. ERP systems are expected to reduce costs by improving efficiencies through computerization and enhance decision making by providing accurate and timely enterprise- wide information (Boston consulting group, 2000). (Shang and Sedan, 2002)propose a comprehensive framework for assessing ERP benefits at five dimensional levels: operational, strategic, organizational, and managerial and IT infrastructural. Operational benefits arise from automation of business process. Strategic benefits

result from the ERP systems ability to support business growth and competitive advantage. Organizational benefits are related to the system enabling business learning and staff empowerment. Managerial benefits arise from better planning and management of organizational resources and better monitoring of financial performance of products. IT infrastructure benefits mainly come from the reduction of IT costs related to the maintenance of legacy system.

According to (Chand et al, 2005)) the internal efficiency benefits comes from improvement in process efficiency, improvement in tactical decision making and adaptation to the radical environment changes in a routine manner. ERP systems are capable of producing real-time information for management to respond to, thus improving control and strategic decision- making (Constantinides, 2003).

One of the main benefits associated with ERP systems according to Wainright et al (2009) is access to integrated and real-time data for better decision making. The philosophy behind a corporate wide ERP is to use IT to break down organizational silos, replacing them with a seamlessly connected and integrated horizontal structure to allow business strategy, organization structure and technologies to work together (McNurlin et al, 2009).

ERP system works essentially at integrating the whole business information, allowing organizations to manage effectively their resource of people, materials, and finance (Markus et al, 2000). Successful ERP system can provide the backbone of business intelligence for an organization. This gives management a unified view of its processes and better enables control over those processes (Gale, 2012)

2.3. Empirical Finding Review

2.3.1 ERP Adoption Dimensions

The ultimate objective of companies today is to increase productivity through system simplification, organizational potential and incremental improvements using modern techniques like ERP. Many business organizations that adopted ERP systems attained the benefits they sought (Wei et al, 2006). After ERP Systems were successfully implemented, companies could set up standards on financial management and operating procedures like managing inventory systems (Hitt et al, 2002) However, not all adopters had successful implementation, and some organizations

failed because ERP system implementation was much more complex than just developing a computer application for a single business function. More than 90% of ERP implementations have been delayed and required additional budget amounts due to numerous changes in the original plan (Langenwalter, 2000). Even when a company realizes that its ERP implementation is not going to be successful, it is usually impossible to cancel the effort (Wang et al, 2006). Such IT driven initiatives require change of the organization's socio-economic system, which is intertwined with technology, task, people, structure, and culture (Bingi et al, 1999)

Studies on such software's found that, particularly those in developing countries face a number of challenges, which inhibit their implantation as successful as predicted. The constraints are associated to productivity related to technological gaps and employee's attitude.

- **Quality Management**

Related to Quality management the previous researchers acknowledge that job quality improvement that improve quality of work is the act of overseeing all activities and tasks needed to maintain a desired level of excellence. This includes the determination of a quality policy, creating and implementing quality planning and assurance, and quality control and quality improvement. Despite of the advantages acknowledged by many authors that as well as many tiers into the integrativerelationships encompasses a positive result on performance of all concerned partners (i.e.increased quality and , lower costs and cycle time where facilitated organizational change) (Eyong, 2010).

- **Financial Management**

Financial Management increases control of work flow or cash management in an organization which implemented ERP it means planning, organizing, directing and controlling the financial activities such as procurement and utilization of funds of the enterprise. It means applying general management principles to financial resources of the enterprise (Graeme, 2003).

- **Customer relationship Management**

According to Kumar *et al.* (2017), in order to advance customer service to serve better, customer relationship management is the invaluable focus of the firm on strengthening the relationships between customer and supplier for the reason of organizational performance.

When suppliers are participated concerning information of the demand forecasts, production and inventory levels decision making of the organization, the organization and suppliers have a working partnership that maximize the benefits of both suppliers and the focal firm by reducing lead times, and in advancing innovations and quality. Customer relationship management is the combination of practices, strategies and technologies that companies use to manage and analyze customer interactions and data throughout the customer lifecycle, with the goal of improving customer service relationships and assisting in customer retention and driving sales growth (Chang, S.I., Gable, G. Smythe, E. and Timbrell, G., 2000).

- **Inventory Management**

In a supply chain the aim is to lower inventory level by forecasting the supply chain therefore the Inventory management is a component of supply chain management that involves supervising non-capitalized assets, or inventory, and stock items. Specifically, “inventory management supervises the flow of goods from manufacturers to warehouses and from these facilities to point of sale” (Goeun, 2013).

- **Procurement management**

Procurement Management will control the procurement process and find out delay in order to decrease lead time and improve on time delivery of items and service. This Procurement Management process will help you to purchase goods and services from external suppliers. It gives you a complete procurement process and procurement procedures, which explain step-by-step, how to purchase from suppliers (Reimers, 2003)

- **Logistics management**

Logistics management is a broad approach that will be applied in order to acquire faster and more accurate transaction and including better vehicle management. Application of management principles to logistics operations for efficient and cost effective movement of goods and personnel (Reimers, 2003).

- **Human Resource Management**

It is the process of managing people in organizations in a structured and thorough manner to achieve efficiency and effectiveness in an organization (Beech, 2006-2007).

The literature review has described ERP system in detail as one of the information system technologies that enjoy a widespread diffusion worldwide (American Chamber, 2002) Since the system can be customized, standard application software which includes integrated business modules for the core processes and functions of an enterprise that seek to present a holistic view of the business from single information and IT infrastructure (Klaus et al, 2000)process driven modules built around software representations of complete business processes that are supposed to represent best business practice in the industry. They are currently being widely implemented in large organizations as well as small and medium sized enterprises. The desire to remain competitive in manufacturing industries has boosted the need to do a radical view in the way of doing business. The ERP has come into the fray to help sort out cost overruns in operation and improve efficiency. Most researchers have pointed out the need for the system in order to enhance resource management and control.

In Ethiopian context, there are very limited literature and research about ERP systems regardless of many ERP research works globally. The first attempt in this regard is the work of (rufael, 2007)which only discusses about the concept and design of ERP frame work and its implementation guideline at Gafat Engineering Company. This is just about ERP framework and it has no experiences of actual ERP implementation success and failures.

The second ERP literature from Ethiopian perspective is that of (Sinamo &Gomez , 2012)This study has discussed about a successful ERP Implementation in another Ethiopian private limited engineering company. The ERP system mentioned by the author is Microsoft Dynamics which has less market share and it is not well known and deployed as SAP and Oracle. In addition, the authors have not mentioned the detail factors encountered as challenges. They have just mentioned that problems encountered are cultural, business and technical.

They have proposed for more studies and reports on ERP implementations related to Ethiopian context for better experience sharing. The other study on ERP system in Ethiopia is the work of (Agonafir, 2013) which is a case study at Ethio-telecom on Oracle ERP. Derese's study was a frame work for successful ERP project. He has tried to list critical success factors along pre-implementation, implementation and post-implementation phases of Oracle ERP. This was a framework for high level implementation guide. He rather suggested to further study the

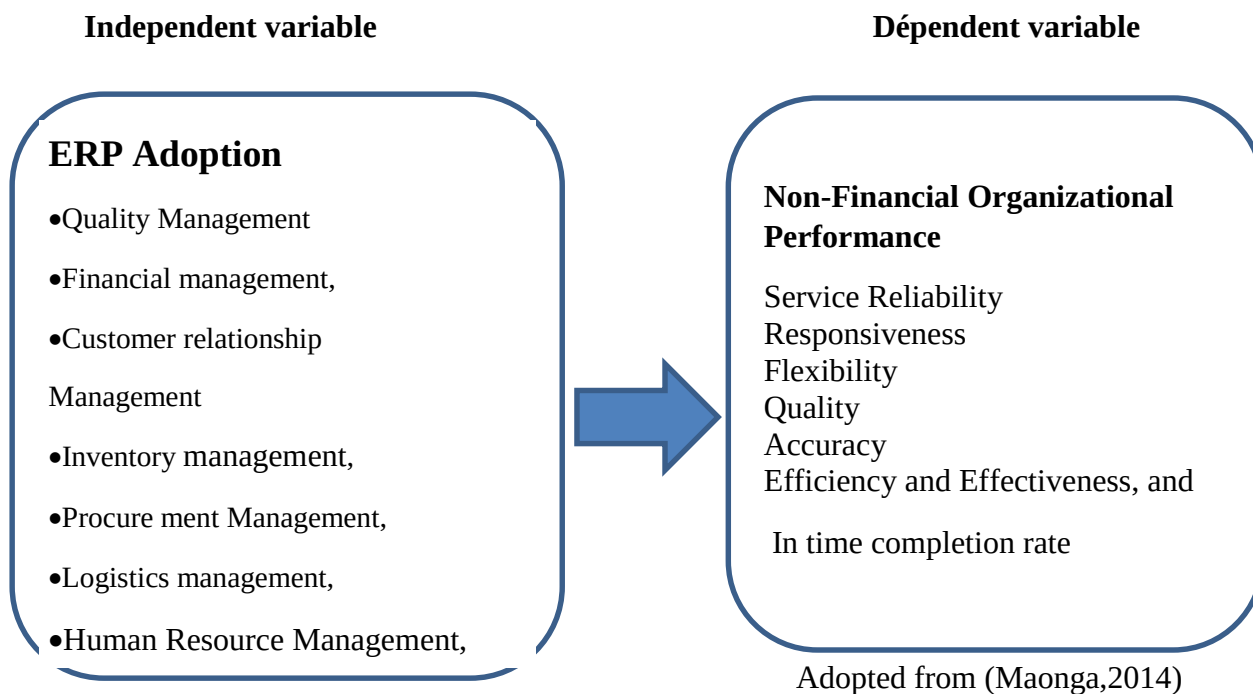
contextual factors in other organizations and with other ERP systems relating them with ERP implementation methodologies. The latest study was by Saron on assessment of ERP implementation at Heineken breweries share company in Ethiopia in her study she tries to mention some of the challenges that an organization faces by implementing ERP (Geremehen, 2017). This study is in line with suggestions of many previous research works in the study area. As the type and management of critical success factors is different in context, a critical success factors approach is necessary. So, this study will try to make detail investigation and find out challenges in ERP implementation and their effect on overall organizational performance

2.4. Conceptual Framework

This study focused in examining the effect of implementing ERP on organizational performance case of ATA. It has independent variable that investigated against dependent variable. Independent variables in ERP adoption evaluated by making bench mark key performance indicator adopted from different literature, then examined its effect on overall organizational performance.

The study was guided by the Conceptual Framework as shown in Figure 2.1 relating the dependent and independent variables.

Figure 2.1 Conceptual Model



CHAPTER THREE

3.RESEARCH DESIGN AND METHDOLOGY

This section presents an overview of the methods that were used in the study. Areas covered including the research approach and design, population and sample, data sources and types, ethical consideration, and data analysis.

3.1. Description of the study Area

In December 2010 the Council of Ministers in Ethiopia passed Regulation 198/2010 which established the Agricultural Transformation Agency (ATA) as the Secretariat of an Agricultural Transformation Council chaired by the Prime Minister., the Agency has 4 offices located around Ethiopia, at Addis Ababa, Hawassa, Mekelle, and Bahirdar, Oromiawith a total of 340 staffs, the study was conducted in the Head office located in Addis Abeba.

3.2. Research Approach

The study followed a mixed research approach, which is a part of quantitative and qualitative research approach. Qualitative study approach was conducted in order to show the challenges that an organization faces when implementing ERP while Quantitative approach was conducted in order to show the effect of implementing ERP on organization's performance. According to (Burns, 2009) quantitative approach helps researchers to test relationships between variables.

Besides it also helps in examining and describing a cause and effect interactions among those variables. Accordingly, both qualitative and quantitative data were collected. Through integrating these two forms of data, it will be able to acquire more complete understanding of the research problem in the processes of the study.

3.3. Research Design

Research design is needed because it facilitates the smooth sailing of the various research operations, thereby making research as efficient as possible yielding maximal information with minimal expenditure of effort, time and money. Just as for better, economical and attractive construction of a house, we need a blueprint (or what is commonly called the map of the house) well thought out and prepared by an expert architect, similarly we need a research design or a plan

in advance of data collection and analysis for our research project. Research design stands for advance planning of the methods to be adopted for collecting the relevant data and the techniques to be used in their analysis, keeping in view the objective of the research and the availability of staff, time and money. Preparation of the research design should be done with great care as any error in it may upset the entire project. Research design, in fact, has a great bearing on the reliability of the results arrived at and as such constitutes the firm foundation of the entire edifice of the research work (Kothari, 2004). The study was designed in explanatory cross-sectional research design (descriptive and inferential statistics). The descriptive study allowed the researcher to describe those data and helps to know the event that has been taking place whereas explanatory study examined the relationships and associations between variables (Independent and Dependent Variables).

3.4. Target Population

(Mugenda, 1999) indicated that target population should be explicitly and unequivocally defined, otherwise statements about the target population after the analysis of data will not be trustworthy. The Agricultural Transformation Agency is purposely selected among other organizations in Addis Ababa as a study area for this research. This is because even if agriculture has been the dominant sector of the country's economy it has been stagnant due to poor performance and ATA is established to identify and address systemic bottlenecks of Ethiopia's agricultural development beside it is claimed by the government of Ethiopia, that agricultural development is a prime strategy to economic development. Although ATA have different branch offices around the country the target population selected for this study is head office employees located in Addis Ababa due to the following rationales. First ATA's Head office in Addis Ababa has the largest concentration in number, compared to other branch offices which make it easily accessible for the data collection. Second, it is difficult to reach other branch offices located across the country i.e. Bahirdar, Hawassa & Mekele. Lastly, it is difficult to study the challenges in implementing ERP and its effect on the overall organizational performance in branch offices where the system is not fully implemented.

Table 3.1: Number of target population

UNITS	POPULATIONS
Logistics & Administration Team	78
Human Resource Team	12
Information Technology Team	12
Procurement Team	12
Finance Team	26
Program Teams	200
Total	340

The sample size was selected based on consideration that it will represent all teams and that it is large enough to allow for precision, confidence and generality of the research findings. The following formula is used for the calculation of the sample size since it was relevant to studies where a probability sampling method was used (Jeff, 2001). The sample size of this study is determined by using Yamane's (1967) formula. It is a simplified formula to calculate the sample size based on a 95% desired confidence level and a 5% desired level of precision. Then proportion to the population in each stratum, the researcher calculated sample size for each level.

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

Where, n = Sample size

N = population size

e = level of precision

Accordingly, 184 respondents were selected from the above different teams and total of 340 ATA staffs at head office in Addis Ababa. Therefore, the population for this study is 184 respondents of the organization. These 184 respondents were selected from logistics and administration, human resources, information Technology, procurement, finance, and program teams on proportional basis respectively. Therefore, $[(78/340) \times 184] = 43$ logistics and administration out of 78, $[(12/340) \times 184] = 6$ Human Resources team out of 12, $[(12/340) \times 184] = 6$ Information Technology out of 12, $[(12/340) \times 184] = 6$ Procurement out of 12, $[(26/340) \times 184] = 14$ Finance out of 26 and $[(200/340) \times 184] = 109$ Program teams out of 200 were selected.

3.5. Sample Design

Since the study's unit of analysis is at the organization or firm level, the researcher samples viewpoints of key organizational informants, including senior and mid-level executives from all part of the organization. These groups of respondents have been described as being among the most knowledgeable informants regarding ERP systems success evaluations in adopting organizations (Gable et al; Sedera et al., 2003)

The study adopted stratified random sampling. This technique is preferred because it is used to assist in minimizing bias when dealing with the population. With this technique, the sampling frame can be organized into relatively homogeneous groups (strata) before selecting elements for the sample. The selected departments/sections will form the strata. The departmental heads/managers were purposively sampled while the staff were randomly selected. The sample size comprises of 184 respondents from a population of 340 which represents more than 54 % of the whole population which fulfills the minimum threshold for sample selection.

3.6. Data Sources and Types

The focus of the study is observing the current practices so that the significance of primary data is remarkable. Secondary data were collected to augment the studies. In order to realize the target, the study used a well-designed questionnaire as best instrument. Besides, face-to-face interviews were also conducted. The interview method of data collection is preferred due to its high response rate that is it gives an opportunity to interact and get details on the questions and answers. Through interviews, clarification of issues is easily achievable leading to accuracy of data from the respondents. The source of the data were employees of the organization for primary data; whereas different journal articles, office manuals, circulars, books, pamphlet, policies, regulation and occasional papers on issues that relate to Enterprise resource planning development in the country were sources of secondary data.

3.7. Data collection Procedure

Data were collected from ATA employees through structured questionnaire, Questionnaires with both close and open ended questions is forwarded to employees of ATA. policies and regulation

and occasional papers on issues that relate to Enterprise resource planning development in the country were thoroughly reviewed.

3.8. Method of Data analysis

The data was obtained through the questionnaires and first checked for completeness. Whether the questionnaire found correctly filled and fitted for analysis, coded. All the data entered into statistical package for social sciences, and analyzed based on descriptive and inferential statistics. The descriptive statistics used included the frequencies, mean scores, standard deviation, percentages and ratios. Then was presented using tables for easier interpretation. The Reliability Analysis will be made using Cronbach's alpha (α) for the measure of internal and scale consistency (reliability).

A multiple linear regression model was done to establish the role of the seven independent ERP Adoption variables on the performance of the organization. To establish the relationship a regression analysis was established. For each ERP Adoption variables, an overall mean was computed and matched with the mean of performance of the organization. From this relationship, the model was generated to determine the relationship using the Multiple linear regression analysis assumptions, such as the relationship between the Y and each of Xi's is linear, those of nonexistence of multi-collinearity (the independent variables are not related among themselves), and another assumption include those of homoscedasticity and normality distribution. The regression equation assumed the following form:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \epsilon$$

Where:

Y is organizational performance;

β_i ($i = 0 - 7$) is the regression coefficient;

X1 – Quality Management

X2 – Financial Management

X3 – Customer relationship Management

X4 – Inventory management

X5 – Procurement management

X6 – Logistics management

X7 -Human Resource Management

€ – Error Term or Unexplained variables not explained by the model

The F- test was conducted to determine the significance of the regression while the coefficient of determination, R², used to determine how much variation in Y is explained by X. This was done at 95% confidence level, and correlation analysis carried out to find the degree and direction of the relationship between dependent variables and the independent variables.

3.9. Validity and Reliability test

3.9.1 Validity Test

Bryman & Bell (2007) defined validity as how much any measuring instrument measures what it is intended to measure. They also suggest that the important issue of measurement validity relates to whether measures of concepts really measure the concept or not. There are several ways of establishing validity such as content validity; convergent validity concurrent; predictive validity; construct validity; and convergent validity. This study addressed content validity through the review of literature and adapting instruments used in previous studies; (Alarie, 2002) Ramstedt and Woxenius (2006)

3.9.2 Reliability test

Selecting scales to include in the study is important to find scales that are reliable. There are a number of different aspects to reliability. One of the main issues concerns the scale's internal consistency. This refers to the degree to which the items that make up the scale 'hang together'. One of the most commonly used indicators of internal consistency is Cronbach's alpha coefficient. Ideally, the Cronbach alpha coefficient of a scale should be above .7.

Table 4.1 Reliability Statistics

Variables	Cronbach's Alpha	N of Items
Quality Management	.934	4
Financial Management	.934	3
Customer Relation Management	.934	3

Inventory Management	.935	3
Procurement Management	.932	3
Logistics Management	.934	3
Human Resources Management	.933	3
Organization Performance	.934	5

Source: *Survey Data, 2019*

3.10 Ethical Consideration

For the data collection processes, an appropriate ethical clearance was obtained from Addis Ababa University School of commerce. Confidentiality of the information was ensured for the respondents by not recording any identifying things like that of the respondent's name and etc. While conducting the study, respondents were informed that the research and collected information using instruments would be used for the academic purpose only. Additionally, the researcher confirmed to respondents that the data collection process carried out whenever they are a willing to cooperate from their side. Moreover, they were informed that the copy of the research will be given to them as soon as the thesis is finished before it is published.

CHAPTER FOUR

4.RESULTS AND DISCUSSIONS

4.1 Introduction

The objective of this study is to understand the challenges that an organization face by implementing ERP and to determine the extent to which ERP implementation affects organizational performance of Ethiopian Agricultural Transformation Agency. The aim of this chapter is to present and interpret the result, and also made discussions on the findings of the study.

4.2. Response Rate

Out of a total of 184 questionnaires that were distributed, 170 are returned. The returned questionnaires signify a response rate of 92% and this response rate would be adequate and enough to draw analysis.

4.3. Demographic Information of the Respondents

4.3.1 Gender

The Gender disaggregation of out of the 170 respondents of the study, 68 percent of the participants of the survey result are male while female respondents are account for 32 percent of the study.

Table 4.3 Demographic Information

Gender	Frequency	Percent
Male	115	67.6
Female	55	32.4
Total	170	100
Age	Frequency	Percent
20-30 years	64	37.6
31-40 years	81	47.6
41-50 years	25	14.7
Total	170	100
Education	Frequency	Percent
Below Diploma	15	8.8
College Diploma or equivalent	18	10.6
Undergraduate Degree	96	56.5
Postgraduate Degree	38	22.4
Doctorate and above	3	1.8

Total	170	100
Position	Frequency	Percent
Director/Deputy Director	8	4.7
Manager	22	12.9
Senior Officer	38	22.4
Officer	60	35.3
Assistant	17	10
Others	25	14.7
Total	170	100
Team	Frequency	Percent
Finance	14	8.2
Logistics & Administration	38	22.4
Information Technology	6	3.5
Human Resources	6	3.5
Procurement	6	3.5
Programs	100	58.8
Total	170	100
Experience	Frequency	Percent
< 1 year	30	17.6
1-2 years	48	28.2
2-3years	40	23.5
4-5years	27	15.9
>5 years	25	14.7
Total	170	100

4.3.2 Age

The respondents that are participated in this study as it can be seen in the above Table 4.2. Most of them, 47.6% are between 31- 40 years and 37.6% of them are between 20-30 years. The remaining 14.8 % are in between 41-50 years. This indicates that majority of the respondents are in between 31-40 years' old.

4.3.3 Educational Background

The respondents that are participated in this study have diverse educational background as it can be seen in the above Table 4.2. Most of them, 56.5 % were a graduate of first degree,22.4% have second degree. Those who have college diploma or equivalent are accounted for 10.6% of the total

and 8.8 % of the total have below diploma. PhD holders are only account about 1.8 % of the respondents under study. This implies that most of the respondents are first degree holders.

4.3.4 Position in the Organization

The respondents were asked to indicate the positions they held, and there are also different compositions of the titles. They were provided with options to choose from; the findings in the table above indicated that Senior officers, officer and assistants account for a total 67.7% of the respondents. This confirms that the respondents of this study were those who engage themselves in implementing ERP throughout the day or are experts in ERP and 17.6 % accounts for managers & director's/deputy director's knowledgeable professionals who are well familiar with ERP system and organizational performance issues the remaining 14 % accounts for others including drivers and analysts. This suggests that, most of the respondents were officers and senior officers who engage themselves in implementing ERP throughout the day or are experts in ERP system.

4.3.5 Teams

The respondents were also requested to indicate the teams they are working in order to insure that each team is properly included in the research. The results illustrated in the table 4.2 confirm that 58.8 % of them were in programs and 41.2% were in operations. This suggests that that most of the respondents were program teams.

4.3.6 Experience

The research also sought to establish the duration that the respondents have had by the time of the study. The results illustrated in the table 4.2 confirm that 28.2% of them have been in the organization for 1-2 years whereas 23.5% is from 2-3 years. 17.6 % have less than one-year experience and 30.6% have more than four years of experience. This is an indication that most of the employees have had more than four years of experience. Hence, they would have been an experienced worker to measure the challenges in implementing ERP since they have been there

before implementation and clearly understand its effect on organizational performance in their organization.

4.4. Descriptive Analysis on challenges of implementing ERP

The first objective of this study is to examine the challenges that an organization face by implanting ERP (Enterprise Resources Planning). The participants were asked to respond on the extent of challenges in implementing ERP in their organization, and rated their responses on a five point Likert- type scale where: 5-to strongly agree, 4-to Agree, 3-to a Neutral, 2-to Disagree, and 1to strongly Disagree. The findings were presented in the subsequent sub themes. In the process of examining of the data, standard deviation was used. Small standard deviations (relative to the value of the mean itself) indicate that data are close to the mean whereas a large standard deviation (relative to the mean) indicates that the data points are distant from the mean. The mean is a poor fit of the data. Standard deviation is a measure of how well the mean represents the data (*Field, 2009*).

Table 4.4 Challenges of implementing Enterprise Resources planning (ERP)

	N	Mean	Std. Deviation
Difficulties in changing to new from old systems	170	3.0765	1.04911
Significant resistance from staff	170	3.4529	1.09362
Inadequate Training	170	3.5471	1.13086
Bugs in the software	170	3.5706	.90904
Poor Software Functionality	170	3.0471	1.17071
Unclear strategic direction and Vison for the Use of ERP	170	3.1647	1.28115
Inadequate Ongoing Support	170	3.4000	1.21334
Turnover of key people	170	3.8294	1.14109
Lack of commitment from top leadership	170	3.0294	1.16876
High costs of implementation	170	3.7529	.97186

According to the survey result, the mean of all variables fall in the high extent from 3.0294 to 3.894. These accounts 72% to 76% of the survey measurement scale. The standard deviation of these variables have variance from .90904 to 1.28115; Bugs in software with the lowest

deviation, .90904 whereas poor software functionality is the highest deviation (1.128115) occurred in this result of analysis.

Hence, this finding implies that there are high challenges in ERP implementation as a result of (Bugs in software, High cost of implementation, Difficulty in changing to new from old system, significant resistance from the staff and Inadequate training) which were relatively low when compared to the remaining variables. Whereas there is low level of challenges as result of Lack of commitment from top leadership, Inadequate Ongoing Support and Inadequate Training.

4.5. ERP Implementation and Organizational Performance

The second objective of the study is to determine the relationship between ERP implementation and organizational performance. Correlation analysis is used to describe the strength and direction of the linear relationship between two variables. The correlation is used for the purpose of a relationship allows predictions to be made of one behavior from another; to demonstrate a test scale validity by showing a significant relationship between it and another accepted scale for a related construct; to show reliability consistency of measurement on two occasions, to show internal consistency of scale items, and for theory verification use to support hypotheses that predict the relationships between variables. Pearson's Product-Moment Correlation is the best known correlation and the most used for interval data.(Beech, 2006-2007)

This study analyzed relationships by using the correlation analysis, which investigates the strength of relationships between the studied variables. Person correlation coefficients reveal magnitude and direction of relationships (either positive or negative) and the intensity of the relationship (-1.0 to +1.0). Correlations are perhaps the most basic and most useful measure of association between two or more variables (Marczyk et al 2005).

According to Marczyk et.al (2005) general guidelines correlations of .01 to .30 are considered small, correlation for .30 to .70 are considered moderate, correlation of .70 to .90 are considered large and correlations of .90 to 1.00 are considered very large. Depending on this assumption, all basic constructs were included into the correlation analysis and a bivariate two tailed correlation analysis was done.

The findings of the correlation matrix analysis in between each indicators of implementation of (ERP) Enterprise Resources planning (Quality Management, Financial Management, Customer

relationship Management, Inventory management, procurement management, Logistics management and Human Resource Management) and organizational performance are shown in the table 4.6 below

Table 4.5 Correlation Matrix

		Correlations						
		Quality Management	Financial Management	Customer relationship Management	Procurement management	Logistics management	Human Resource Management	organizational performance
Quality Management	Pearson Correlation	1	.456**	.406**	.453**	.501**	.414**	.384**
	Sig. (2-tailed)		.000	##	.000	.000	.000	.000
	N	170	170	##	170	170	170	170
Financial Management	Pearson Correlation	.456**	1	.365**	.462**	.553**	.414**	.376**
	Sig. (2-tailed)	.000		##	.000	.000	.000	.000
	N	170	170	##	170	170	170	170
Customer relationship Management	Pearson Correlation	.406**	.365**	1	.390**	.324**	.293**	.287**
	Sig. (2-tailed)	.000	.000		.000	.000	.000	.000
	N	170	170	##	170	170	170	170
Inventory management	Pearson Correlation	.222**	.201**	.194*	.124	.234**	.086	.139
	Sig. (2-tailed)	.004	.009	##	.107	.002	.267	.071
	N	170	170	##	170	170	170	170
Procurement management	Pearson Correlation	.453**	.462**	.390**	1	.712**	.414**	.257**
	Sig. (2-tailed)	.000	.000	##		.000	.000	.001
	N	170	170	##	170	170	170	170
Logistics management	Pearson Correlation	.501**	.553**	.324**	.712**	1	.460**	.362**
	Sig. (2-tailed)	.000	.000	##	.000		.000	.000
	N	170	170	##	170	170	170	170

Human Re- source Manage- ment	Pearson Correla- tion	.414**	.414**	.293**	.414**	.460**	1	.488**
	Sig. (2- tailed)	.000	.000	##	.000	.000		.000
	N	170	170	##	170	170	170	170
organiza- tion perfor- mance	Pearson Correla- tion	.384**	.376**	.287**	.257**	.362**	.488**	1
	Sig. (2- tailed)	.000	.000	##	.001	.000	.000	
	N	170	170	##	170	170	170	170

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

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

Source: Survey Data, 2019

As it can be seen from the findings of study, the Pearson correlation test conducted for customer relationship management, Inventory management, procurement management and organizational performance indicates that there is positive and small correlation with correlation coefficient of .287, .139 and .257 and significance value less than .000, .071 & .001 respectively.

And also there is Positive and moderate relationship between Human Resource Management, Logistics management, Financial Management, Quality management and organizational performance with coefficients of correlation and significance value of .488, .362, .376 and .384 and significant value less than .000 for all the listed variables. The relationship between performance indicators and organizational performance was investigated using Pearson product-moment correlation coefficient.

Preliminary analyses were performed to ensure no violation of the assumptions of Normality, linearity and homoscedasticity. There was a moderate, and positive correlation between the two variables [$r = -.471$, $n = 170$, $p < .0001$], with high levels of Human resources management associated with lower levels of organizational performance.

It can be concluded that implementation of ERP and organizational performance has small and moderate and positive relation based on Pearson correlation coefficient.

4.6. Regression Analysis

4.6.1 Model Assumption tests

4.6.1.1. Linearity Assumption

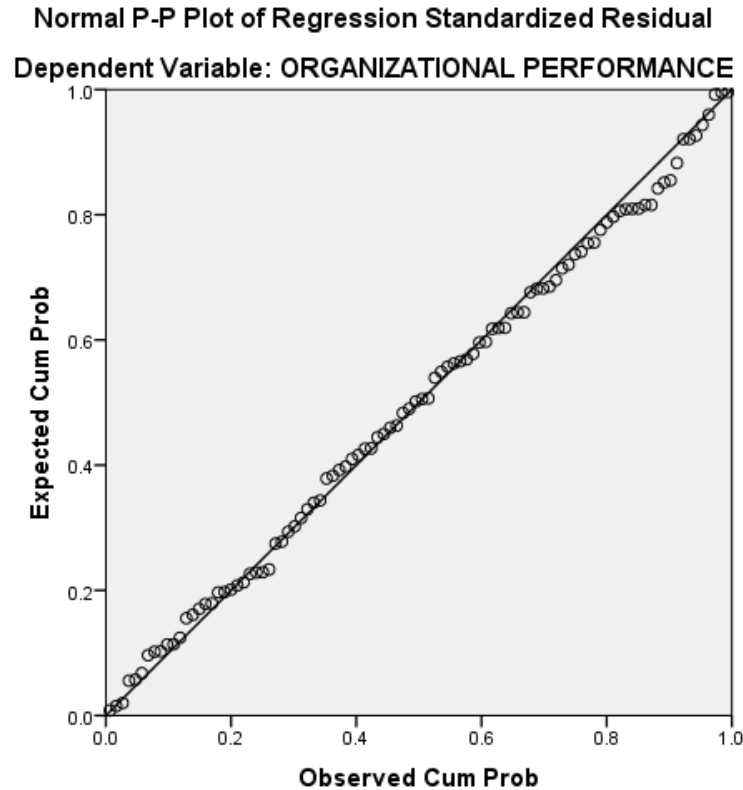
Linearity assumption states that the residuals should be linear relationship with the predicted dependent variables score. Linear relationship between independent variables and dependent variables.

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

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

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

Figure 4.1 Linear Multiple Regression Assumption



Source: *Survey Data, 2019*

4.6.1.2. Multicollinearity

Multicollinearity assumption states that independent variables should not be related to each other. If they are highly correlated, then multicollinearity exists. High predictor-predictor correlation ($r > .85$) results in unstable regression model (J, 2010). The table 4.9 below shows that the relationships between explanatory variables (Quality Management, Financial Management, Customer relationship Management, Inventory management, procurement management, Logistics management and Human Resource Management) are below the correlation boundary line (i.e., .85) for all of the independent variables.

Table 4.7 Multicollinearity Correlation Matrix

A more precise approach to check whether or not a given explanatory variable has a strong relationship with the other explanatory variables (an issue of multicollinearity exist in the model), Tolerance and VIF (variance inflation factor) is the good indicators. For example, Tolerance less

than .1 (10%) hint at multicollinearity, and VIF (variance inflation factor) > 10 also implies multicollinearity. So that VIF must be between 1-10, otherwise VIF <1 or >10 indicates multicollinearity existence(Ge, 2013). The table 4.8 correlation coefficient below describes that both the tolerance and variance inflation factor (VIF) are greater than 10%, and below 10 respectively.

Table 4.8 Multicollinearity Test of Independent Variables

Model	Collinearity Statistics	
	Tolerance	VIF
Quality Management	0.638	1.568
Financial Management	0.328	3.053
Customer relation Management	0.742	1.347
Inventory Management	0.908	1.102
Procurement Management	0.402	2.49
Logistics Management	0.355	2.821
Human resources Management	0.684	1.462

Coefficients ^a								
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	1.613	.101		15.893	.000		
	Improved Quality of work	-.057	.021	-.234	-2.700	.008	.638	1.568
	Financial flows control	.016	.030	.066	.542	.588	.328	3.053
	Improved interaction with Supplier	.037	.018	.168	2.085	.039	.742	1.347
	Lowered inventory levels	-.027	.019	-.104	-1.425	.156	.908	1.102
	Better Time management	.009	.025	.038	.345	.731	.402	2.490

Better vehicle management	-.057	.027	-.247	-2.125	.035	.355	2.821
Improved decision making process	-.055	.022	-.206	-2.462	.015	.684	1.462

a. Dependent Variable: Do you think ERP projects affect organization performance in your company

Source: *Survey Data, 2019*

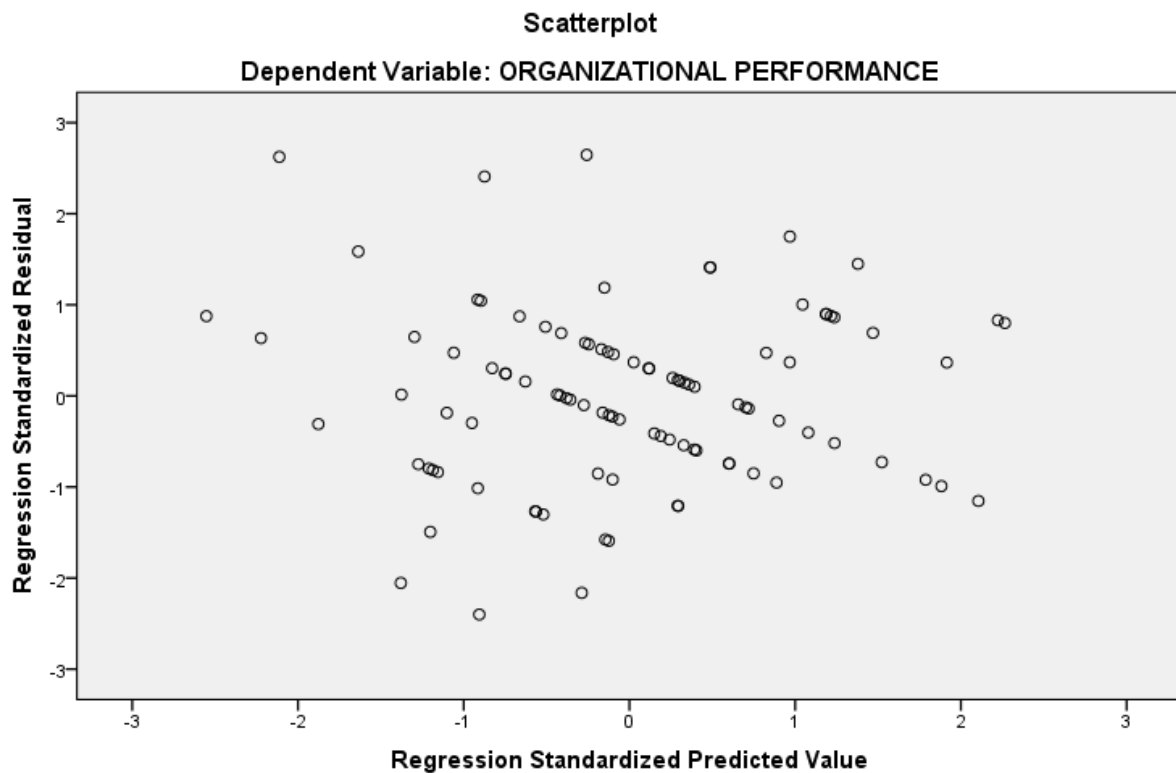
To detect the problem of multicollinearity the VIF technique is used prior to executing the regression analysis. As presented in the table 4.8, the values of VIF are well below 10 and suggesting that there is no problem of multicollinearity among the study independent variables.

4.6.1.3 Homoscedasticity

Homoscedasticity assumption elaborates that the variance of the residuals about the predicted dependent variables scores should be the same for all predicted scores. Error variance is assumed to be the same across all values of other variable. As it can be seen from graph, the dots which are scattered evenly is the indication of a homogeneity assumption (Mat Roni, 2014).

It could be checked that residuals do not vary systematically with the predicted values by plotting the residuals against the values predicted by the regression model. And looking for any evidence that residuals vary in a clear pattern. Look at the following figure, the data points appeared fairly randomly distributed with a fairly even spread of residuals at all predicted values.

Figure 4.2 Homoscedasticity Multiple Regression Assumption

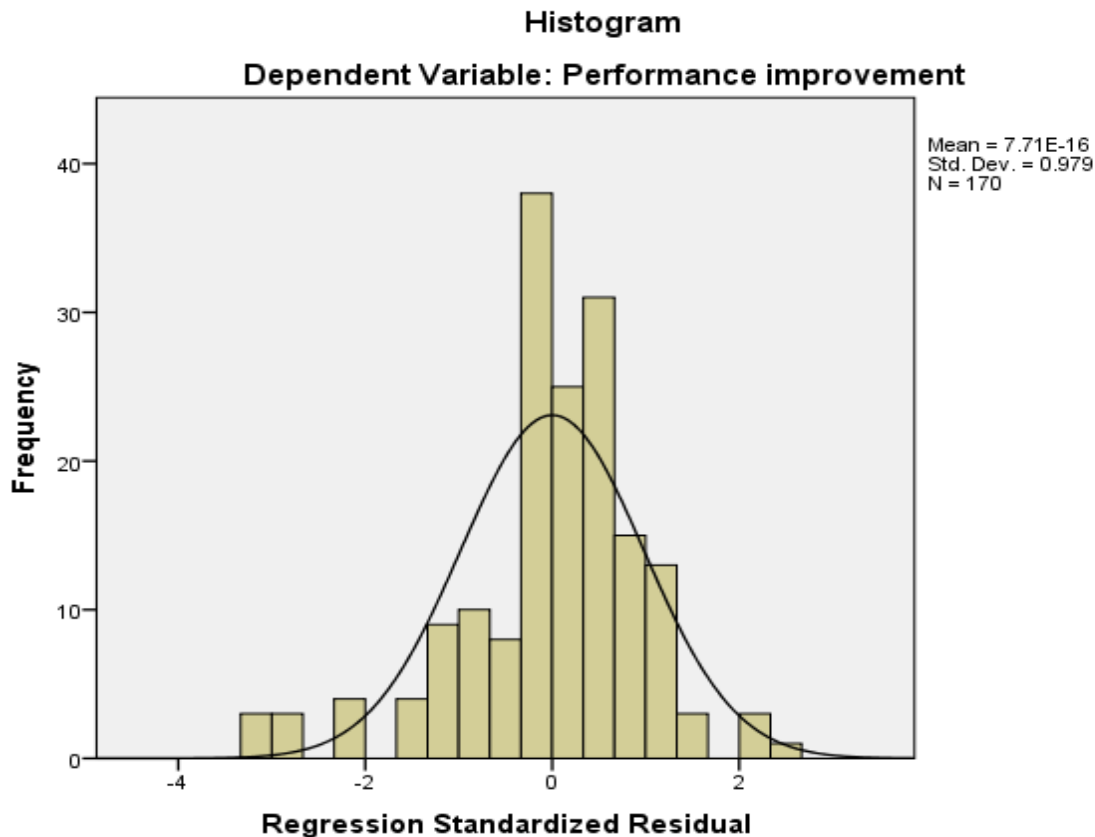


This scatterplot is a result of what a scatterplot might look like if the assumption of homoscedasticity is met. The data points seem to funnel towards both the negative of the x-axis, and also toward the positive of x-axis indicating that there is equal variability in the residuals at higher predicted values and at lower predicted values. This suggests that our model is equal accurate in estimating both lower values and higher values.

4.6.1.4 Normally distributed residuals

A histogram of the residuals (errors) in a model can be used to check that the residuals are normally distributed about the predicted dependent variables scores. However, it is often good to tell if the distribution is normal from just a histogram, and additionally, a P-P Plots Should be used as shown below figure.

Figure 4.4 Normality Distribution P-P Plot



Source: *Survey Data, 2019*

One of the classical linear regression models assumptions is the error term should be normally distributed or expected value of the error term should be normally distributed or expected value of the errors terms should be zero ($E(UT)=0$). The researcher used histogram to identify normal distribution of residuals and the result indicates that standard residuals are a little bit far away from the curve, many of the residuals are fairly close more to the curve and the histogram is bell shaped. This implies that the majority of scores lie around the center of the distribution (so the largest bars on the histogram are all around the central value). Therefore, this indicates that the residuals are normally distributed.

4.6.2 The effect of implementing ERP on Organizational Performance

The third objective of this study is to examine the effect of implementing ERP on the performance of organization, since correlation cannot determine existence of cause and effect due to there may be a number of other unmeasured variables which could be interrelated and responsible for the relationship found. Multiple regression is not just one technique, but a family of techniques that

can be used to explore the effect between one continuous dependent variable and a number of independent variables or predictors (usually continuous) (Beech, 2006).

A multiple regression analysis was conducted to predict the relationship between ERP Adoption (Inventory management, Logistics management, Customer relationship Management, Quality Management, financial management, Human Resource Management and Procure ment management) and organizational performance using regression analysis. The Model Summary table shows how much variance is explained by each model. Whether the independent variables are a significant predictor of dependent variable will be indicated by the value in the Sig. F Change for this model. Note that the value for the next model reflects all independent variables entered.

R is the population correlation coefficient, and it takes on values between -1 and +1; 0 indicates no linear association; 1 indicates a perfect positive linear relationship; -1 indicates a perfect negative linear relationship (Ge, 2013).

Table 4.9 Model Summary ^b

Model Summary ^b				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.664 ^a	.440	.416	.71220

Source: Survey Data, 2018

A. Predictors: (Constant), Quality Management, Financial Management, Customer relationship Management, Inventory management, Procure ment management, Logistics management and Human Resource Management.

B. Dependent Variable: Organizational Performance

R is the square root of R-Squared and is the correlation between the observed and predicted values of dependent variable.

The finding of the analysis implies that there are an association of 66.4% between observed and predicted organizational performance. Therefore; from this result, it can be interpreted as there is a strong correlation between observed organizational performance and predicted performance of the organization.

R^2 is called the coefficient of determination, it is the proportion of the variance in the dependent variable (organizational performance) explained by variations in the independent variables, it shows the level of variance explained by the model; which indicates how the organizational performance varies with ERP adoption practices, Quality Management, Financial Management, Customer relationship Management, Inventory management, Procurement management, Logistics management and Human Resource Management

The finding shows that, the independent variables (Quality Management, Financial Management, Customer relationship Management, Inventory management, procurement management, Logistics management and Human Resource Management) that were studied, explain only 44 % the performance of the organization, in case of Agricultural transformation agency as represented by the R^2 . Therefore, this means that another ERP Implementation factors not studied in this research contributes 56 % of the organizational performance. Therefore, further research should be conducted to investigate the others ERP adoption dimensions (56%) that have a role for the performance of the organization

Table 4.10 ANOVA^a

ANOVA ^a						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	64.682	7	9.240	18.217	.000 ^b
	Residual	82.171	162	.507		
	Total	146.853	169			

Source: Survey Data, 2019

a. Dependent Variable: Organizational Performance

b. Predictors: (Constant), Quality Management, Financial Management, Customer relationship Management, Inventory management, Procurement management, Logistics management and Human Resource Management.

The findings of the above table 4.10 indicated that the significance value of the model is $p < .0005$; which is less than the significance level of 0.05 at a confidence level of 95%, thus the model is statistically significant in predicting how ERP Adoption affect the performance of the

organization. Since this value of F calculated is greater than the F critical (value =18.217), this shows that the overall model is significant. The researcher used multivariate linear regression method to run regression analysis. F-statistic is significant at 0.01 indicating that the model. This implies that implementation of ERP significantly affects the performance of an organization.

Table 4.11 Regression Coefficient

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	1.470	.319		4.615	.000		
	Quality Management	.071	.075	.073	.939	.000	.570	1.755
	Financial Management	.243	.091	.252	2.675	.008	.389	2.569
	Customer relationship Management	.045	.064	.053	.709	.040	.625	1.601
	Inventory Management	-.108	.066	-.107	-1.645	.102	.821	1.218
	Procurement management	.283	.079	.336	3.573	.000	.390	2.565
	Logistics management	.095	.085	.105	1.117	.032	.393	2.542
	Human Resources Management	.021	.072	0.22	.285	.776	.582	1.720

Source: Survey Data, 2019

a. Dependent Variable: Organizational Performance

The regression coefficient is the independent variable associated with it is contributing significance to the variance accounted for in the dependent variable. From the findings in the above table 4.13, the regression equation is: -

$$Y = 1.470 + 0.071x_1 + 0.243x_2 + 0.045x_3 - 0.108x_4 + 0.283x_5 - 0.095x_6 + 0.021x_7 + \epsilon$$

Where Y is Organizational Performance

X1= Quality Management,

X2= Financial Management,

X3= Customer relationship Management,

X4= Inventory management,

X5= Procurement management,

X6= Logistics management,

X7=Human Resource Management,

€= Error term

From the above regression model, the significance value of four independent variables (Quality Management, Financial Management, Customer relationship Management, Procurement management and Logistics management) is less than 0.05 which show that the model is statistically significant to predict the effect of ERP Adoption on organizational performances, whereas the significance value of two independent variables (Inventory management and Human Resource Management) is greater than 0.05 which show that the model is statistically insignificant to predict the analysis of the Effect of implementing ERP on organizational performance. This implies that the independent variable such as, Quality Management, Financial Management, Customer relationship Management, procurement management and Logistics management have a greater influence when implementing ERP on the performance of the firm. On the other hand, Inventory management and Human Resource Management have no effect on the Performance of the firm which implemented ERP. According to the finding, the multiple linear regression equation established that all independent variables taking to be zero (when Quality Management, Financial Management, Customer relationship Management, Inventory management, procurement management, Logistics management and Human Resource Management are held at Zero), it was found that organizational performance would increase by 1.470 constant.

Increase in Quality Management, would lead to an increase in organizational performance by a factor of .071 while Financial Management would lead to an increase in firm performance by a factor of .243. This implies that when there is a better or increased quality management and financial management by implementing ERP organizational performance will increase at a significant level.

The study also found that Customer Relationship Management increases performance of the firm by a factor of .045. while a unit increase in procurement management will lead to a 0.283 increase in performance of the firm. This also implies better customer relationship management and

procurement management by implementing ERP will lead to an increase in performance of an organization at a significant level.

Whereas an increase in inventory management by implanting ERP would lead to a decrease in firm performance by a factor of. 108 by insignificant level implying that inventory management by implementing ERP has insignificant negative effect on the performance of an organization.

A unit increase in logistics management and Human Resource Management will increase performance of an organization which implemented ERP to a 0.095 and .021 respectively. But an increase in logistics management is statically significant whereas an increase in Human resources by implementing ERP is statistically insignificant. This clearly indicates that there existed a positive relationship between ERP implementation and organizational performance.

These findings support other literature that argues ERP implementation have positive effect on the performances of the organization. When the results of this study compared with those of previous research on ERP Implementation and organization performance with findings that indicates there is positive effect in improving a firm's performance is consistent with the findings of J. Kamir (2017) ,M.Momnyi(2014)respectively.

CHAPTER FIVE

5.SUMMAR, CONCLUSION AND RECOMMENDATIONS

5.1. Summary of Major Findings

From the findings of the study's objectives of this investigation, the results found were summarized by the researcher in the following paragraphs.

- The analysis made on challenges in ERP implementation at the case of Ethiopian Agricultural Transformation Agency revealed that the result of Turnover of key people (3.8294), High costs of implementation (3.7529), Inadequate Ongoing Support (3.4), Bugs in the software (3.5706), Inadequate Training (3.5471), Significant resistance from staff (3.4529), Unclear strategic direction and Vision for the Use of ERP (3.1647), Difficulties in changing to new from old systems (3.0765), Poor Software Functionality (3.0471) and Lack of commitment from top leadership (3.0294) ranked from one to ten respectively. The result of the analysis implies that the above listed challenges were faced by the organization through implementing ERP since all of the dimensions have fallen in the great rate as per the survey scale instrument.
- The result related to the second objective of the study is to examine the relation between ERP implementation and organizational performance, therefore the relation of the dependent variable are small and positive with Quality Management (.073), customer relationship management (.053) and Human resources management (.021) and moderate correlation with procurement management (.336), logistics management (.105) and Financial Management (.252) and small in degree as well as negative relationships with Inventory management (.107). Accordingly, the findings of the result were implying that Quality Management, customer relationship management and Human resources management slightly vary together with organizational performance while procurement management, logistics management and Financial Management and organizational performance substantially change together whereas Inventory management adversely change with the change in organizational performance.
- The significance value of Quality management, logistics Management, Financial Management, Customer relation Management and Procurement Management are less than the statistical

level (i.e., .05), so these variables were statistically significant. The significance value of inventory management and Human resources management is greater than the statistical level (i.e.,.05), so this variable was statistically insignificant. The result implies that the degree of Quality management, Procurement management, Logistics management, Financial Management and Customer relationship management changing together with organizational performance had relevant effects; the degree of Human resources management varying together with organizational performance have an irrelevant effect and also , the degree of Inventory management varying against performance of the organization was not relevant.

- The coefficient of determination (R^2) of the model has produced that ERP implantation explained 44 % variance of performance of the organization; indicating that 56 % of the organizational performance could be explained by another factors which are not considered by the study.
- The regression coefficient (β) of the model were also 0.73,.252,.053, -.107,.336, .105 and .022 for Quality management, Financial management, customer relationship management, Inventory Management, Procurement management, logistics management and Human Resources management respectively. Given that the statistical values of Procurement management (.000), financial management (.008), customer relationship management (.040), Quality management (.000) and logistics management (.032) were significant. Thus, they have the power to impact the performance of the organization. Generally, the model was statistically fit in predicting organizational performance since its statistical value ($P < .0005$) less than statistical level ($\alpha .05$).

5.2. Conclusion

- The result of the analysis implies that the above listed challenges were faced by the organization when implementing ERP in an organization, since all of the challenges have fallen in the great rate as per the survey scale instrument.
- The Inventory Management, Procurement management and customer relation management slightly vary together with organizational performance; Quality management, logistics management, financial management and Human Resources Management and

organizational performance substantially change together. The Procurement management, financial management, customer relationship management, Quality management, logistics management and Human Resources Management were significant. The Inventory Management was statically insignificant. Hence, that the degree of Quality management, Procurement management, Logistics management, Human Resources management, Financial Management and Customer relationship management changing together with organizational performance had relevant effects; adversely, the degree of Inventory management varying together with performance of the organization was not relevant.

- The ERP implementation explained 44 % variance of performance of the organization; indicating that 56% of the organizational performance could be explained by another factors which are not considered by the study.
- Procurement Management and customer relationship management dimensions have a direct as well as positive influence on the performance of the organization, provided that better time management by decreasing lead time for decision making and increasing efficiency by Implementing ERP and also developed interaction with both internal and external customers which holds each individual firms or units accountable for meeting its deadline lead to high performance of the organization;
- Inventory management that coordinated information transfer to lower Inventory level has an indirect potential to improve organizational performance. This implies that at the case of Ethiopian agricultural transformation agency the implementation of ERP system doesn't increase inventory management which leads to an increase in organizational performance therefore the implementation of ERP system to increase organization performance is insignificant
- Quality management and financial management dimensions have a direct as well as positive influence on the performance of an organization which implemented ERP in improving quality of work and by giving access to financial control.
- Logistics management which bring better vehicle management and improved decision making process brings better performance at a significant level where as an increase in

human resources management will increase organizational performance at insignificant level.

- The overall assessment results of the structural model revealed that the model had satisfactory statistical power in predicting the research model. Generally, the study showed that the superior organizational performance can be attained through implementation of ERP.

5.3. Recommendation

Grounded the study's summary of major findings and conclusions careworn, the here under listed recommendations are projected as a way forward from findings of the study.

- ❖ Continuous improvement in Information Technology infrastructure and personnel should be undertaken in the organization, so that optimal performance would be achieved with ERP Adoption
- ❖ The degree of variance amongst ERP Adoption dimensions and organizational performance should be increased through systems automation, framework agreement , relationship management and performance assessment.
- ❖ Another factors in ERP Adoption and implementation that have not seen in this study, but might have explained organizational performance should be considered and retreated in order to maximize the effects of ERP systems.
- ❖ All the dimensions of ERP Adoption should be created as well as practiced by the organization to attain superior performance.

5.4. Suggestion for Further Study

The present study's geographical scope was limited to Head office, Addis Ababa; so that future studies should have to consider expanding this scope to cover the whole Branches. Moreover, the study was also limited to the Agricultural Transformation Agency only, future studies should have to incorporate other organizations which engage themselves not only in agricultural but other sectors which implemented ERP.

Finally, I would like to suggest that the future studies should focus on two variables (Inventory Management and Human Recourse Management) that were insignificant by this study.

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Appendices

Appendix I

Regression

Variables Entered/Removed^a

Model	Variables entered	Variables Removed	Method
1	Quality Management, Financial Management, Customer relationship Management, Inventory management, Procurement management, Logistics management and Human Resource Management.		enter

a. Dependent Variable: ORGANIZATIONAL PERFORMANCE

b. All requested variables entered.

Reliability

. Enter

**Scale: ALL
VARIABLES**

Case Processing Summary

Item-Total Statistics				
Item List	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Difficulties in changing to new from old systems	141.1235	433.494	.374	.937
Significant resistance from staff	140.7471	427.385	.495	.936
Inadequate Training	140.6529	443.021	.140	.939
Bugs in the software	140.6294	435.868	.375	.937
Poor Software Functionality	141.1529	431.562	.370	.937
Unclear strategic direction and Vision for the Use of ERP	141.0353	448.401	.017	.941
Inadequate Ongoing Support	140.8000	433.025	.326	.937
Turnover of key people	140.3706	432.874	.353	.937
Lack of commitment from top leadership	141.1706	436.450	.269	.938
High costs of implementation	140.4471	433.053	.419	.936
Do you think ERP projects affect organization performance in your company	143.1412	454.643	-.373	.939
Reduction of cost	140.6765	427.060	.496	.936
Cycle time reduction	140.3235	423.392	.638	.934
Productivity improvement	140.3118	431.080	.464	.936
Job Quality improvement	140.2529	423.113	.608	.935
Performance improvement	140.1706	424.190	.674	.934

Better resource management	140.2176	425.686	.653	.934
Increased IT infrastructure capability	140.2706	427.808	.573	.935
Lowered inventory levels	140.7294	436.613	.352	.937
Improved decision making	140.1471	424.706	.617	.935
Support organizational changes	140.1941	423.305	.606	.935
Build common visions	140.3941	424.666	.622	.934
Quickened information response time	140.2059	427.218	.580	.935
Improved order management/order cycle	140.4000	420.466	.625	.934
Improved decision making process	140.1471	427.203	.627	.935
Improved on-time delivery	140.3647	415.310	.762	.933
Improved interaction with Supplier	140.9059	426.322	.526	.935
Improved cash management	140.5941	424.467	.631	.934
Improved Quality of work	140.2647	422.705	.691	.934
Better coordination and cooperation between functions and different departments	140.1647	429.121	.605	.935
Better management and controlling Functions	140.2471	421.300	.692	.934
Possible redesigning of ineffective business functions	140.3118	434.393	.490	.936
Control of work flow	139.8706	422.670	.698	.934
Information flow Control	140.0235	425.029	.705	.934
Financial flows control	140.2765	422.036	.704	.934
Better vehicle management	140.1529	421.456	.676	.934

Better Time management	140.2588	423.128	.635	.934
Faster, more accurate transactions	140.3471	422.879	.630	.934
ERP Project implemented in your company	140.1059	436.995	.480	.936

	N	Mean	Std. Deviation
Difficulties in changing to new from old systems	170	3.0765	1.04911
Significant resistance from staff	170	3.4529	1.09362
Inadequate Training	170	3.5471	1.13086
Bugs in the software	170	3.5706	.90904
Poor Software Functionality	170	3.0471	1.17071
Unclear strategic direction and Vision for the Use of ERP	170	3.1647	1.28115
Inadequate Ongoing Support	170	3.4000	1.21334
Turnover of key people	170	3.8294	1.14109
Lack of commitment from top leadership	170	3.0294	1.16876
High costs of implementation	170	3.7529	.97186

Variables	Cronbach's Alpha	N of Items
Quality Management	.934	4
Financial Management	.934	3
Customer Relation Management	.934	3
Inventory Management	.935	3
Procurement Management	.932	3
Logistics Management	.934	3
Human Resources Management	.933	3
Organization Performance	.934	5

Appendix II : Research Questionnaire

Directions

1. Please read each question or statements carefully and respond as genuinely as possible.
2. Give your responses on each item by clicking in to the box ☒ that indicates the degree to which you feel the questions, or the statement describes the real conditions or corresponds with your perception.
3. It is possible to click again to untick ☐ if you feel to change your answer and click on the box ☒ to choose the scale you would like to but choosing more than one option is impossible.

Section One: General Information

A. Gender Male ☐ Female ☐

B. Age 20-30 years ☐ 31-40 years ☐ 41-50 years ☐ 51-60 years ☐ Above 60 ☐

C. What is your highest level of education? Below Diploma ☐ College Diploma or equivalent ☐ Undergraduate Degree ☐ Postgraduate Degree ☐ Doctorate and above ☐

D. Which vertical are you working in? Finance ☐ Logistics & Administration ☐ Information Technology ☐ Human Resources ☐ Procurement ☐ Programs ☐

E. What is your position? Director/Deputy Director ☐ Manager ☐ Senior Officer ☐ Officer ☐ Assistant ☐ If Other please specify _____

F. How long have you been working for ATA? < 1 year ☐ 1-2 years ☐ 2-3years ☐ 4-5years ☐ >5 years ☐

Section Two: Issues Related with the study area

What do you think are the challenges in implement ERP at ATA?

Please read each list of challenges carefully and show the extent of your agreement on the list of challenges by marking the numbers in the column using the following rating scale (Likert Scale)
Based on your experience in the company, and using this scale from 1 to 5 .

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
List of Challenges	5	4	3	2	1
Difficulties in changing to new from old systems	☐	☐	☐	☐	☐
Significant resistance from staff	☐	☐	☐	☐	☐
Inadequate Training	☐	☐	☐	☐	☐
Bugs in the software	☐	☐	☐	☐	☐
Poor Software Functionality	☐	☐	☐	☐	☐
Unclear strategic direction and Vision for the Use of ERP	☐	☐	☐	☐	☐
Inadequate Ongoing Support	☐	☐	☐	☐	☐
Turnover of key people	☐	☐	☐	☐	☐
Lack of commitment from top leadership	☐	☐	☐	☐	☐
High costs of implementation	☐	☐	☐	☐	☐

Do you think ERP projects affect organization performance in your company?

Yes ☐

No ☐

No	Statement	1	2	3	4	5
ERP Adoption						
Quality Management						
	The ERP system improved job quality in the organization in general	☐	☐	☐	☐	☐
	Implementation of ERP improve the quality of each individuals work	☐	☐	☐	☐	☐
	The ERP system enables to Support organizational changes	☐	☐	☐	☐	☐
	ERP system Quickened information response time	☐	☐	☐	☐	☐
Financial Management						
	The ERP system enabled Financial flows control	☐	☐	☐	☐	☐
	The ERP system Improved cash management	☐	☐	☐	☐	☐
	Implementation of ERP brings Better Resources Management	☐	☐	☐	☐	☐

Customer Relation Management						
	ERP system created Better coordination and cooperation between functions and different departments	☐	☐	☐	☐	☐
	Better management and controlling functions	☐	☐	☐	☐	☐
	Implementation of ERP Improved interaction with Supplier	☐	☐	☐	☐	☐
Inventory Management						
	The ERP system Lowered inventory levels at your organization	☐	☐	☐	☐	☐
	The system facilitated and Improved decision making process	☐	☐	☐	☐	☐
	By using the ERP system, it was Information Flow Control was able to be realized	☐	☐	☐	☐	☐
Procurement Management						
	The ERP system enabled to Control of work flow of every requests	☐	☐	☐	☐	☐
	Possible redesigning of ineffective business functions	☐	☐	☐	☐	☐
	Improved on-time delivery	☐	☐	☐	☐	☐
Logistics Management						
	By Implementing ERP Better vehicle management is achieved	☐	☐	☐	☐	☐
	Transactions in the organization were Faster and more accurate when Implementing the ERP system	☐	☐	☐	☐	☐
	The ERP system Increased IT infrastructure capability	☐	☐	☐	☐	☐
Human Resources Management						
	The ERP system brought Better Time management	☐	☐	☐	☐	☐
	The system Improved decision making in the organization	☐	☐	☐	☐	☐
	Through implementing the ERP system, it was able to Build common visions across the organization	☐	☐	☐	☐	☐

Section Three: Organizational performance.

Please indicate the extent to which the following statements concerning the relationship that exists between ERP adoption and the performance of your organization occurs.

Use the scale of 1 to 5

No	Statement	1	2	3	4	5
Organizational Performance						
	Reduction of cost	☐	☐	☐	☐	☐
	Cycle time reduction	☐	☐	☐	☐	☐
	Productivity improvement	☐	☐	☐	☐	☐
	Performance improvement	☐	☐	☐	☐	☐
	Better resource management	☐	☐	☐	☐	☐
	Improved order management/order cycle	☐	☐	☐	☐	☐

Based on your perception, mark the below statement using the rating scale of the ERP Project implemented in your company?

☐ = ERP project very much decreased performance

☐ =ERP project decrease performance,

☐ = ERP project doesn't change /affect performance

☐ =ERP project increase performance

☐ =ERP project very much increase performance.

If there is any other issue/ problem that you observed in relation to ERP implementation and its Utilization, please write down here;

Thank You Again!