



ST. MARY'S UNIVERSITY

SCHOOL OF GRADUATE STUDIES

**EFFECT OF ENTERPRISE RESOURCE PLANNING
IMPLEMENTATION ON ORGANIZATIONAL PERFORMANCE: IN
CASE OF ETHIOPIAN STEEL PLC**

BY

GETACHEW NEGA

SGS/0527/2010A

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**A THESIS SUBMITTED TO ST. MARY'S UNIVERSITY, SCHOOL OF
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**ST. MARY'S UNIVERSITY
SCHOOL OF GRADUATE STUDIES
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Acronyms

ERP	Enterprise Resource planning
OERP	Opportunities of Enterprise Resource planning
CERP	Challenges of Enterprise Resource planning
EDM	Effective Decision Making
IP	Internal Process
OP	Organizational Performance
SPSS	statistical package for social science
VIF	variance inflation factor

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Abstract

The objective of this research is to examine the effect of Enterprise Resource Planning (ERP) Implementation challenges and opportunities on organizational performance at Ethiopian Steel Plc and independent variables such as opportunities of ERP implementation, challenges of ERP implementation, effective decision making and internal process. The research adopted mixed research design explanatory and descriptive method. Primary data were generated from 86 employees who were selected by using disproportionate stratified sampling design. Regression analysis was conducted to identify the factors that determine organizational performance. In the ANOVA analysis the result shows that there is significant relationship between ERP implementation and organizational performance. In the multiple linear regression analysis, the result found that all variables which are opportunities, challenges, decision and internal process had positive significant effect on organizational performance at Ethiopian Steel Plc. The R square value shows that 67.5% of variation in their performance was explained by the factors affecting the performance of the organization. Most of the respondents were satisfied since this system makes the work done more automated one, effective, save time and energy too by passing its negative challenges. ERP have many opportunities this also supported by the respondents. The opportunities include it decision making more effective, minimize time spent, increase level of useful information, have effective management system, effective flow of internal process, enhance performance largely, respondents had a very good view concerning opportunities of ERP implementation in Ethiopian Steel plc. They give positive effect towards the organizational performance. It is thus recommended that Managers of the organization should make interventions on the challenges of ERP implementation on organizational performance to improve the performance and thereby the performance of the organization. Based on the result of descriptive analysis found that the performance of organization is good by overpass challenges of ERP implementation problems

Keywords: organizational performance, opportunities, challenges, decision and internal process

CHAPTER ONE

INTRODUCTION

This chapter addresses the introductory part of the paper. It includes background of the study, statement of the problem, research question, research objective, and significance of the study, definition of terms and organization of the study.

1.1 Background of the study

ERP systems play a fundamental important supporting role in several industries including the service and product industries. According to Abugabah and Sanzogni (2009), ERPS is hugely responsible of optimum performance industries such as the transport, telecommunications, and education, manufacturing as well as airline industries. Njihia and Mwirigi (2014), observe further these systems support a spectrum of activities in modern organizations including sales, billing, marketing, human resource management, quality control and production thus ensuring general performance of the organization through facilitation of these pertinent processes. Motwani (2016) makes a similar observation noting that ERPs are of fundamental benefit to firms in terms of facilitating performance.

ERP systems are regulatory and flexible information systems where information and information-based processes within organization integrate in the organization unit Hendricks et al. (2006). As such, the ERP systems, integrate the firm's internal and external management information throughout the company, embracing a spectrum of process including sales, marketing, customer relations, services, manufacturing, accounting/stoke finance and management among others Garcia & Bernal (2007). The effect of ERP systems on organizational performance is therefore observable from the fact that these systems effectively facilitate organizations principal process.

Enterprise Resource Planning (ERP) is a cross-functional enterprise system directed by a modulate group of software modules that sustain the basic internal business processes of any given organization Kumar and Hillegersberg (2000). Kumar and Hillegersberg (2000) define enterprise resource planning (ERP) systems as “configurable information Systems packages that

integrate information and information-based processes within and across functional areas in an organization” Maxie *et al.* (1991). In information systems (IS) area, implementation is defined as the process that begins with the managerial decision to install a computer based organizational information system and is complete when the system is operating as an integral part of the organization’s information system Zhang *et al.* (2005).

ERP software provides integration of every aspect of procurement, production and delivery for manufacturers regardless of whether they are a make-to-stock, make-to-order or engineer-to-order manufacturer. A manufacturing company will be concern with software functionality that focuses on maintaining optimal inventory levels, facilitating quick movement of goods, providing strong front office functionality for customer service personnel, and delivery flexible reporting for management.

The researcher’s interest to examine the effect of ERP implementation on organizational performance because ERP is the most rapidly growing system in the world and in some degree also in Ethiopia.

1.2 Statement of the Problem

Enterprise resource planning (ERP) system is one of the most acceptable management systems, providing a lot of benefits like data integration, real-time capabilities and smooth flow of information for business with and out of organizations. However, the implementation of ERP systems is not easy and figures show very high failure rate Davenport (2000). There are a number of challenges that companies may encounter in implementing ERP systems Ibrahim (2010). ERP Systems are complex, and implementing one can be a difficult, time consuming, and expensive project for a company Davenport (2000). The ERP system is closely integrated and requires a commitment from all organizations society. Moreover, there is no guarantee for the result, ERP implementation can gather enormous benefit for successful companies or it can be devastating for organizations fail to manage the implementation effect. However, ERP implementation challenges and opportunities on organizational performance clearly unknown.

Ethiopian steel plc is a foreign direct investment steel manufacturing company, which is working in three operation areas in Ethiopia; Addis Ababa at Akaki Kality, Gonder, Hawassa and Mekele. The company has implemented MS-Dynamics ERP since 2014. This study aims to measure the effect of ERP implementation and the relationship between the critical success factors and ERP

implementation. As per the knowledge of the researcher, there is no paper that conducted the implementation of ERP implementation in the steel manufacturing sector in Ethiopia. The researcher would see to this gap by examining the effect of ERP implementation challenges and opportunities on the organization performance in Ethiopian steel plc. Hence, the study would see to achieve the following; determine the effect of ERP implementation challenges and opportunities on Organizational performance of Ethiopian steel plc; examine the effect of the ERP implementation on organizational performance; to examine ERP implementation effect on the effective decision making and internal process. In so doing, additional would see to generate information on the relationship between ERP implementation and organizational performance and contribute the current literature on the ERP-organizational performance relationship.

1.3 Research Questions

This research attempted to answer the following basic questions based on the study findings.

1. What are the main opportunities of ERP Implementation to improve organizational performance?
2. Does ERP implementation help to make effective Decision for enhance organizational performance?
3. Does ERP implementation facilitate internal process with respect to organizational performance?
4. What are the major challenges of ERP implementation hinder for organizational performance?

1.4 Objective of the Study

1.4.1 General Objective

The general objective of this study would be to examine the effect of Enterprise Resource Planning (ERP) Implementation on organizational performance.

1.4.2 Specific Objectives

The specific objectives are: -

1. To investigate opportunities of ERP implementation for improvement of organizational performance.

2. To determine effects of ERP implementation on effective decision-making process to enhance organizational performance.
3. To determine the effect of ERP implementation on internal process with respect to organizational performance
4. To investigate challenges of ERP implementation which is hinder for organizational performance.

1.5 Definition of Terms

Enterprise Resource Planning (ERP): -ERP is a software application that fully integrated information systems that span most or all of the basic, core business functions, including transaction processing and Management information for those business functions Whitten *et. al.* (2004).

Organizational Performance: -Analysis of a company's performance as compared to goals and objectives, within corporate organizations, there are three primary outcomes analyzed: shareholder value performance, financial performance, and market performance Nahm *et al.* (2007).

Internal Processes: -The perspective, according to Gekonge (2005) as quoted by Kairu *et al.* (2013), internal processes perspective focuses on the internal business results that lead to financial success and satisfied customers". To meet the organizational objectives and customers" expectations, organizations must identify the key business processes at which they must excel. These key business processes are monitor to ensure that outcomes would always be satisfactory.

1.6 Significance of the study

The study would be expected to significant to the following stakeholders like Employees of the organization, The Management of Ethiopian Steel PLC, Other Organizations, Researchers and Academicians.

1.6.1 Employees of the Organization

The research stands to be of vital importance to the employees of the organization, as it stands help them appreciate how ERP system links with their organizations performance objectives. The study may therefore help the employees embrace technology especially the ERP systems

and reduce the level of possible resistance and indifference that the employees may have towards such a technological application.

1.6.2 The Management of Ethiopian Steel Plc

The study may be important to the top leadership and management of the organization in several ways. The study helps to provide information on the effect of ERP implementation on performance of organization hence form a vital external source of information or an outside perspective. The management of the company can integrate the information provided by the current study with internal intelligence of the organizational effects of ERP implementation and develop a more informed perspective of the relationship between the two. The study results may also supplement internal intelligence and managerial knowledge and can be a valuable source of information in the evaluation of ERP implementation for the organization. Therefore, the study may be a vital benefit in managerial decision-making.

1.6.3 Other Organizations

Other organizations including those in the same industry and other industries can get benefit from the results of the current study. By reviewing the result of the current study, the management of other organizations would get to appreciate more, how ERP can influence organizational performance. Additionally, the information generated by the current study can help managements of other firms build on their own intelligence on the relationship between ERP system implementation and organizational performance and inform their managerial decisions concerning implementation of the application. Furthermore, the study can help inform management of other organizations to learn from experiences with ERP and strategically implement the same to ensure realization of their organization's performance objectives.

1.6.4 Researchers and Academicians

The research would facilitate the understanding of the relationship between ERP system implementation and organizational performance for researchers interested in doing a related study. It would contribute to current scarce literature on the subject and provides a source of background information for future researchers. Besides, the study would help generate academic interest in the study of the relationship between ERP implementation and organizational performance and facilitate availability of literature on the topic especially in Ethiopia. It provides a source of literature to

students who are interested in the subject or who intend to conduct a related study on other industries as part of their thesis.

1.7 Scope of the study

The research intended to examine implementation of ERP system and its effect on organizational performance in Ethiopian steel plc starting from the date of implementation up to present. The study target populations were 110 respondents which include the top management, middle level management, Operational level management and staff (non-management). The scope of this research delimited to Ethiopian Steel plc head office at Akaki Kaliti Addis Ababa Ethiopia.

1.8 Organization of the study

The paper is organized in the following form: The first chapter contains introductory which consists of general background, statement of the research problem, basic research questions, objectives of the study, definition of terms, significance of the study and scope. The second chapter provide summary of related literature review of theoretical and empirical studies in the study of effects of ERP implementation on organizational performance. Chapter three is Methodology part; containing design of the report, subjects/participants of the study, sources of data collection and methods of data analysis. Chapter four devote on Results and Discussion; which summarize the results and findings of the study or discuss the findings. Finally, chapter five summarizes the findings from the results discussed under chapter four; limitation of the study, conclude the study and forward relevant recommendations.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.1 Theoretical Literature

ERP systems, similar to other business solutions, should be implemented to address specific Needs and conform to the business characteristics of an organization Gefen & Ragowsky (2005). ERP systems might be suitable under many situations but less so under others. Benefits of ERP Systems could include better coordination among subunits and administrative efficiencies. The More interdependent the sub-units in an organization are, the more benefits will accumulate Gefen & Ragowsky (2005). Benefits from ERP implementation generally could be categorized into tangible and intangible benefits Nicolaou (2004). Important intangible benefits are associated with internal integration, improved information and processes, enhanced customer service, better knowledge processing, decision reliability, decisional substantiation, competitiveness, decision-making speed, and treatment of large scale and complex problems Holsapple & Sena (2005). Examples of tangible benefits include reduced inventory, reduced personnel, and increased profitability. In general, ERP systems contribute to organizational efficiency, improved management, and interorganizational integration Sacco, Pedron, Cazella, Macadar, and Neto (2003).

As Holland and Light (2001) noted, ERP systems started to have substantial presence in Organization in the 1990s and that a decade of practice was necessary to provide an insight in to the usage of ERP systems. A sufficient usage period is especially important when considering the maturity of usage in contrast to implementation success. The reason is that organizations take time to shift in their perspectives and utilize new ideas and technologies Holland & Light (2001). As Holland and Light (2001), observed, ERP systems have the potential of either supporting high-level decision making in organizations or just being utilized as simple transaction processing systems.

Some studies on the impact of an ERP on organizational performance were exploratory in nature and based on users' perceptions. Hitt, Wu, and Zhou (2002) noted that the majority of the studies on the impact of ERP systems are interviews, case studies, a collection of case studies, or industry surveys. Empirical research on the impact of ERP systems on organizational performance, which was not based on user perception, included the studies by Poston and

Grabski (2000), Hunton et al. (2003), and Nicolaou, (2004). These three studies compared the performance of public firms that adopted ERP with a matching group of non-adopting firms.

Various financial indicators available through Compustat were used to measure organizational performance. ERP systems have been widely used for over a decade now and there was a dearth of research on the impact of ERP on organizational performance. The three major studies by Nicolaou, (2004), Poston and Grabski, (2000) and Hunton et al. (2003), although using the same general methodology, have resulted in contradictory conclusions. The studies by Poston and Grabski and Hunton et a (2003). used three years of post-adoption financial data, while the study by Nicolaou used four years of post-adoption data. As Poston and Grabski (2005), noted, the three-year longitudinal study might not have been enough to capture the impact of ERP on firm performance. A four-to-five-year study might have demonstrated return for ERP implementation. This study employed the methodology used by the above three studies. In order to investigate the full impact of ERP adoption, four years of post-adoption data was used.

ERPs integrate material, monetary and information flows through a set of integrated application modules Scapens and Jazayeri (2003); Nicolaou, (2004). They are implemented to help manage an organization in an integrated manner Nicolaou (2004). Therefore, ERPs are considered managerial tools, and they are linked to the organizational process of accounting and controlling Chapman (2005), as this area is primarily concerned with resource management, providing information for decision making, and performance management. ERPs might serve to support critical functions of accounting and control system by facilitating decision making and organizational control Nicolaou (2008).

The benefits of ERP implementation may arise in many organizational areas, from operational to strategic benefits and from tangible to intangible results Nicolaou (2004); Nicolaou and Bajor, (2004): internal integration, improved information, improved customer service, cost efficiency, improvements in productivity. Based on a literature review, Wagner, Scott and Galliers, (2011) find that ERP adoption leads to improvements in transaction processing capabilities, in coordinating record keeping, in reducing the cost of duplicating data, but also in fiduciary control. Some studies argued that intangible benefits are in many cases more important than the tangible ones Nicolaou and Bajor, (2004).

The organizations' accountability model is also influenced by the new technology. ERPs affect the planning and decision systems, the performance evaluation system and the communication

system Gabriels (2004), by increasing transparency, integration and use of information for organizational change Nicolaou (2008). Scapens and Jazayeri (2003) argue that the new IT system facilitates the change in the roles of management accountants and management information, but it is not the cause of this change. Granlund and Malmi (2002) also find that ERP led to small changes in the accounting system. On the other hand, there are changes in the collection, measurement, analysis and communication of information and richer sources of information for accounting Burns and Vaivio (2001). Nicolaou and Bajor (2004) suggest that ERPs promote cooperation, knowledge and expertise, authority and responsibility, therefore positively influencing the management of organizations. ERP systems combine business processes and IT technology of the implementing organizations in order to ease the flow of information through business functions. Accompany implementing an ERP system may need to Velcu (2010): (i) make changes to its business processes and procedures (ii) customize the ERP system and (iii) become dependent on the ERP vendor for support and updates. The business process changes resulting from the ERP system customizations need to fit the organizational processes to the ERP system, and may be critical in successful use of the ERP system after its go-live stage.

However, the ultimate impact of ERP implementation is on organizational performance. By conducting a literature review, Hyvonen (2007) concludes to the existence of a strongly held view that information technologies can enhance organizational performance, especially in the case of a customer-focused, dynamic strategy. The impacts of IT in general and of ERP in particular, on organizational performance were discussed in a substantial body of literature Velcu (2010). ERPs' implementation is considered as a strategic investment decision Cooke and Peterson (1998); Wah (2000) with benefits expected to accrue over several periods of time, as opposed to one-time windfall gains Nicolaou (2004), Shang & Seddon (2000). It is important to assess the impact of ERP implementation on organizational performance, because this is the ultimate measure in identifying successful projects and best practices, and separate them from failures.

Extant literature provides numerous definitions for ERPs as a result of a diversity of opinions and contexts in ERP systems use Boersma & Kingma (2005); Otieno (2010). While we acknowledge the entanglement and socio-materiality of information systems Cecez et al. (2014), in this study we use the technology or material definition to enable us to explore the relationship between the social and material (in this case the ERP) Mutch (2013). Hence, an ERP is defined

as an enterprise-wide application software package that helps solve the fragmentation issues in organizational information, by automating and integrating key business processes, providing real-time information with regards to these processes, and allowing cross-departmental sharing of common data and practices within an enterprise Gefen and Ragowsky (2006); Khaparde, (2012). Using ERPs to integrate business processes and information, companies have realized benefits in improved planning and decision making, enhanced coordination capabilities and efficiency, and agility in responding to customer requirements Chang, Cheung, Cheng, &Yeung, (2008); Sadrzadehrafiei, Chofreh, Hosseini, & Sulaiman (2013). These assurances of business success have lured organizations into implementing ERPs to assist in adapting to a changing competitive global environment Metaxiotis (2009); Ali and Younes (2013). As one of the most significant IS investments, these enterprise systems require significant costs, time and expertise Gefen and Ragowsky (2006). From the significant amount of research identifying ERP critical success factors, differences in implementation success factors between developed and developing countries have been identified

2.1.1 Evolution of ERP

Table 2.1 Evolution of ERP

1960s	Inventory Control Packages
1970s	Material Requirements Planning (MRP)
1990s	Enterprise Resource Planning (ERP)
2000s	Extended ERP

Source: -Saron Gebremedihin (2017)

As illustrated earlier in 1960s Inventory Management and control is the combination of information technology and business processes of maintaining the appropriate level of stock in a warehouse. The activities of inventory management include identifying inventory requirements, setting targets, providing replenishment techniques and options, monitoring item usages, reconciling the inventory balances, and reporting inventory status. Michael et al. (2004), cited in Bin Embong (2008). In the 1970s Material Requirement Planning (MRP) utilizes software

applications for scheduling production processes. MRP generates schedules for the operations and raw material purchases based on the production requirements of finished goods, the structure of the production system, the current inventories levels and the lot sizing procedure for each operation. 1980s Manufacturing Requirements Planning or MRP utilizes software applications for coordinating manufacturing processes, from product planning, parts purchasing, inventory control to product distribution. 1990s Enterprise Resource Planning or ERP uses multi-module application software for improving the performance of the internal business processes. ERP systems often integrate business activities across functional departments, from product planning, parts purchasing, inventory control, product distribution, fulfillment, to order tracking. ERP software systems may include application modules for supporting marketing, finance, accounting and human resources.

Enterprise resource planning systems are extensive software systems that integrate a number of business processes, such as manufacturing, supply chain, sales, finance, human resources, budgeting, and customer service activities Weinrich & Ahmad (2009). The other benefits of ERP systems are its complete integration with all the business processes, reduction in the volume of data entry, upgradability of the technology, portability to other systems, adaptability, and applying best practices Saatcioglu (2007). However, without successful implementation of the system, the projected benefits of improved productivity and competitive advantage would not be forthcoming Addo-Tenkorang & Helo (2011). This requires changes not only in systems but also in processes and other social dimensions Kwahk & Kim (2008) and in the coordination among members of the organizations Chang et al. (2008). The implementation of ERP systems in an organization is often accompanied by substantial changes in organizational structure and ways of working Kallunki, Laitinen, & Silvola (2011). Further, implementation of ERP systems in developing countries is faced with specific difficulties over and above those faced by industrialized countries Xue, Liang, Boulton, & Snyder (2005). This suggests that information technology and management practices need to be modified for different cultural contexts Ananadarajan, Igbaria, & Anakwe (2002). While previous research has examined aspects of business process change, little research has focused on the individual employee or studied the drivers of process adoption by employees on the factors influencing resistance, or the impacts of process change on employees of complex technology solutions like the ERP Venkatesh (2006). With the change in the Indian economy and consequent changes in the business environment, there is a need to understand how different factors have influenced information system (IS) deployment in Indian firms Tarafdar & Vaidya (2006).

2.3 Empirical literature

2.3.1 ERP and Operational Costs

In non-technical terms, operational costs refer to the expenses that the firms incur in order to operate. Technically though, and according to Zeng *et al.* (2012), operational costs are the resource, time and fiscal expenditures that the firm's management and top leadership incur in orders to keep the firm running on a daily basis. The organizational incurs such expenses in terms of administrative and maintenance costs. In this way, as Singh and Singh (2013) explain, operating cost can be construed as a component and of the firm's operating income, which is habitually reflected in the firm's income statement.

The implementation of ERPs in the firms is associated with improved inventory turnover and management, as well as higher productivity and greater efficiency hence diminishing operation costs Al-Tarawneh (2012). Empirical studies show that the adoption of ERPs injects efficiency in organizational processes through the reduction of coordination costs and enhancing tighter cording between and among departments, which allow organizations to react promptly and simultaneously to certain environmental turbulences and opportunities Elragal & Al-Serafi (2011).

Zing, Lu and Skibniewski (2012) contend that operation and cycle time reduction are the primary benefits of an ERP system to a company that adopts it. Huang, Huang, Wu and Lin (2009) in a study to assess the impact of ERP on operational costs of firms determined that the systems led to the reduction of operation costs for the adopting firms. Kang, Park and Yang (2008) argued that ERP systems led to the reduction of operational costs through facilitation of businesses processes including information exchange and decision-making. Furthermore, studies have found that ERP systems also contribute to costs reductions especially those related to Information Technology (IT) structures by substituting ERP for the scattered legacy systems that the firms were using before Kang *et al.* (2008). According to Elragal and Al-Serafi (2011) observe that ERP systems shortens operational aspects such as lead-time for responding to environmental dynamics that would otherwise result in costly procedures for the firm. Empirical evidence from previous studies exist ERP to cost reduction through removal of error in business processes and particularly elimination of duplicates in a production line hence precipitating the realization of high-quality services and products at a reduced cost. Huang *et al.* (2009), found that enhanced reaction time precipitated by

ERPs to fulfill customers' orders enhance the corporation's ability to minimize inventory stock, which leads to greater inventory turnover.

Fur, Gmeiner, Schiereck, and Strahringer (2007) have however argued that operational cost reduction might not be one of the principal reasons for firms' adoption of ERP systems. They contend that in service-sector business such as consultancy, banking and telecommunication, ERP adoption is usually done to facilitate efficiency and effectiveness of organizational processes and that cost is of secondary concern. Some studies have even found that the costs associated with the ERP systems implementation and maintenance might actually be a barrier to its adoption by firms. Zeng *et al.* (2012) observe that research among US-based firms found that the average costs for implementing an ERP was about \$1 million and that the processes took between 6 months and 2 year.

2.3.2 ERP on Decision Making

According to Al-Tarawneh (2012), decisions are the outcome of a careful deliberations and scrutiny of alternatives. The process of decision-making takes place at all levels of the organization and it involves problem identification and the consideration of multiple alternatives. The decision-making process is therefore a crucial process in the firm and a primary determinant of organizational success. Furthermore, decision-making is a highly information dependent process, one which borrows heavily from the stakeholders and incorporate managerial intelligence to ensure the realization of potentially effective decisions Ucakurk & Villard (2013).

As such, in business, decision-making is the identification and selection, from among a multiplicity of alternatives, a possible solution or strategy to a given problem in light demands of the circumstances Al-Tarawne (2012); Nooriae (2012). Nooriae (2012) contends that decision-making is one of the principal managerial functions and one with potential positive or negative consequences for organizational performance. It is suggested that this information-dependent attribute of decision-making process is what makes ERP systems important to it. As such, competency in decision-making separates a performing from a non-performing firm and a successful from unsuccessful firms. This means that any input that facilitates augments or enhances the quality of managerial decision-making directly enhances performance Zeng *et al.* (2012).

Enterprise resource system also increases the availability of information helping the companies to have information in real time to make wise decisions and accurate prognostics regarding the organization. Ucakturk and Villard (2013) contend that the strategic function of information systems (IS) is the ability to provide crucial information for product and service development, and supporting vital business strategies including decision-making. In a study, Kelton, Pennington, Tuttle and Brad (2010) found that the implementation of ERP systems affects decision-making processes in various contexts.

Ponorica *et al.* (2013) makes a similar observation when they argue that ERP systems provide consistency and accuracy of information and hence improve the managerial decision-making processes. In a study conducted by Lecic and Kupusinac (2013), it was found that ERP systems act as vital decision support system, which integrates memory and processes to perform simulations such as “what if” simulation. They further determined that data warehouses that conduct analyses that support decision-making.

Ucakturk and Villard (2013) find that ERP systems are most reliable source of information for managerial decision-making. They further contend that ERP facilitate real time environmental analysis and provide managers with information that they can use strategically to ensure organizational performance. Management can, therefore, make decisions faster and with very few errors. Data becomes very visible across the organization. ERP systems enable managers to control the whole business and accelerate decision-making.

Through the use of ERP, managers are able to access accurate, timely and complete information that support their decision-making competencies Al-Tarawne (2012); Nooriae (2012). Ucakturk and Villard (2013) found that firms that had adopted ERP systems reported making successful and effective decisions. This implies that ERP improves the quality of the managerial decision regarding how to run the firm, respond to threats and opportunities and successfully position the firm within a competitive business context.

2.3.3 ERP on Business Processes

Business processes can be understood, as are all the activities and key processes required in order for the company to excel at providing the value expected by the customers. Dallas and Wyn (2014) explain that business process management (BPM) is a form of management practice in which is concerned with the improvement of company's performance through the enhancement and control of business processes. As such, BPM integrates managerial techniques and ERP systems throughout organizational processes Gartner (2010). The ERP system once implemented is meant to improve organizational functions by simplifying organizational processes leading to seamless operations in the organization Njihia and Mwirigi (2014) observe further these systems support a spectrum of activities in modern organizations including sales, billing, marketing, human resource management, quality control and production thus ensuring general performance of the organization through facilitation of these pertinent processes. Addo and Helo (2011) conducted a review of existing literature on ERP and found that there seemed to be a consensus among researchers that ERP systems allow adopting firms to integrate a spectrum of principle business processes for optimum performance. According to Spathis and Constantinides (2014), the essence of a complete ERP is not only to automate data and provide a platform for sharing it across the firm but also to automate the business process and produce real-time data. In this way, the Enterprise Resource Planning systems directly and indirectly facilitate the various business processes in the daily operation of the firm and enhance the firms' performance Njihia & Mwirigi (2014).

According to Gartner (2010), ERP systems provide firms with the ability to enhance businesses process through the integration of all the activities and function areas of a company. In a study conducted to examine the impact of ERP on organizational process of Australian firms, it was determined that the system has improved the effectiveness of decision-making and transaction process of firms that had implemented ERP systems Ucakturk & Villard (2013). Some studies have found that ERP facilitates the accounting process in firms that have adopted enhancing efficiency and speed of these processes Spathis & Constantinides (2014); Hsueh & Fu Chuan Pai (2012).

2.3.4 ERP on Individual Staff Productivity

In high-competition business environment of modern times, the issue of employee productivity is a crucial one for supervisors and managers as their primary job is to explore and get the best out

of employees to raise their firms' competitive edge Qutaishat *et al.* 2012). Providing employees with timely information, reducing their workload by eliminating task duplicities managers are able to achieve their competitive strategies while ensuring optimum performance of individual employees.

Velcu (2015) notes that one of the initial studies on the relationship between ERP on organizational performance revealed that ERP had a positive effect on productivity of employees in the firm. He notes that the study determined a gross marginal product of ERP on productivity to be about 95%. Exact Max (2014) contends that ERP influences staff productivity in at least four important ways; including improved communication, reduced work-load per employee, facilitation of fact-based decision-making and elimination of duplication of tasks and data. Panorama Consulting Solutions (2013) observes that a recent poll revealed that organizations world over are adopting ERP systems to reduce the workload for their employees and to ensure their optimum productivity.

Exact Max (2014) makes a similar observation noting that without ERP systems firms experience low employee productivity levels as employees are forced to accomplish several tasks resulting in poor performance, reduced motivation and employee fatigues. Research has established that ERP system facilitate employee productivity in very fundamental ways. It is established that when employees are less bogged down by ineffective business processes, they become less productive and that ease of communication between and among employees and the ease of access of data with not apprehension about the data's validity increases employee productivity Panorama Consulting Solutions (2013). In this perspective, productivity metrics implies time allocation to non-value addition but essential activities such as data collection and the correction of mistakes that could be inherent in the data collected.

Nonetheless, Shahzadi and Naveed (2016) caution that ERP systems may fail to achieve anticipated results concerning employee productivity. This is because employees have a tendency of rejecting systems to which they are not familiar. This view is conceived under the Technology Acceptance Model (TAM). According to the TAM, acceptance and use of a technological application is contingent on among things, the extent to which potential user conceive it as being useful, easy to use and the attitudes that they develop towards the application Mekic & Ozlen (2014). The implication is therefore, that if the attitudes employees have towards the ERP and if they perceive it as difficult to use and worthless, they may resist it.

Thus, the ability of ERP to boost employee performance is moderated by these intermediate or contravening variables.

2.3.5 ERP on Management Control

Shahzadi and Naveed (2016) contend that ERP systems are indispensable additions to management control in modern organizations. They observe that ERP systems enhance business process, efficiencies in different aspect of organizational operations and growth as well as better fulfillment of customer demands, data reliability, better knowledge, inventory control measures and decision-making power that accord manager's greater control. ERP systems provide managers with important information in real time, which assist managerial decision making in tandem with the goals and objectives of the firm Jamil & Mohamed (2013).

According to Armesh, Salarzeh and Kord (2010), management control systems (MCS) allow managers to achieve managerial functions more effectively. Such as system collects and utilizes information to assess the performance of multiple organizations resources including financial, human among other organizational processes with regard to the attainment of organizational strategies Ho, Huang & Wu (2011); Armesh *et al.* (2010). Furthermore, MCS have been employed as frameworks for the alignment of congruence between different aspects of organizational process especially action taking and employee decision making with the goals of the firm Armesh *et al.* (2010); Jamil & Mohamed (2013). In this sense, the use of an ERP system such as the MCS has an important positive impact on organizational performance by according more managerial control of the aspects of organizational activities and performance.

2.3.6 Impact of the ERP System on Internal Processes

According to Bosilj and Spremic (2004), internal processes are all the activities and key processes required in order for the company to excel at providing the value expected by the customers. Internal Processes are lead indicators where management intervention is possible to affect customer and financial outcomes. There are several activities that happen in the organization on a daily basis, these include communication, accounting, management, sales, and access to information, evaluation and monitoring as well as marketing among others Botta & Millet (2006). The perspective, according to Gekonge (2005) as quoted by Kairu et.al (2013), internal processes perspective focuses on the internal business results that lead to financial success and satisfied customers to meet the organizational objectives and customers'

expectations, organizations must identify the key business processes at which they must excel. These key business processes are monitored to ensure that outcomes will always be satisfactory Berner (2009). The process can be broadly categorized into three groups; Operations Management, Customer Management and Regulatory or social processes. Operations Management can be conceptualized as the administration of business practices to create the highest level of efficiency possible within an organization. It is concerned with converting materials and labor into goods and services as efficiently as possible to maximize the profit of an organization.

Operations management teams attempt to balance costs with revenue to achieve the highest net operating profit possible. Operations management handles various strategic issues including determining the size of manufacturing plants and project management methods, and implementing the structure of information technology networks. Other operational issues include the management of inventory levels, including work-in-process levels and raw materials acquisition; quality control; materials handling; and maintenance policies Shuhaimi *et al.* (2016); Bosilj & Spremic (2004). Operations management entails studying the use of raw materials and ensuring minimal waste occurs. Managers utilize numerous formulas such as the economic order quantity formula to determine when and how large of an inventory order to process and how much inventory to hold on hand.

The second aspect of internal process incorporates customer management. Customer relationship management (CRM) is a term that refers to practices, strategies and technologies that companies use to manage and analyze customer interactions and data throughout the customer lifecycle, with the goal of improving business relationships with customers, assisting in customer retention and driving sales growth Botta & Millet (2006). CRM systems are designed to compile information on customers across different channels or points of contact between the customer and the company, which could include the company's website, telephone, live chat, direct mail, marketing materials and social media Mwirigi (2014)

CRM systems can also give customer-facing staff detailed information on customers' personal information, purchase history, buying preferences and concerns. A well-chosen customer management process is one that allows the firm to capture customer feedback. This valuable information can and should be used by management Shuhaimi *et al.* (2016). Positive feedback can be built on to offer even more great service and negative feedback can be corrected and acted upon. The third dimension to internal processes relates to the regulatory and social processes

within the firm. It concerns the establishment of good or cordial relations with various stakeholders Berner (2009). The various external stakeholders that the firms seek to establish good relations with include investors, creditors, the government and regulatory authorities as well as the general public affected in one way or another by the firm's operation Kusek & Rist (2014); Bosilj & Spremic (2004).

2.3.7 ERP versus Internal Processes

Empirical review suggests that ERP has an impact on organizational internal processes, this part of the chapter reviews literature relating the nature of the relationship between ERP systems and internal processes. It examines research findings and scholar's arguments regarding the impact of ERP on how ERP systems support or augment internal processes, how ERP affects access to information within the firm and its impact on the monitoring process within the firm. It commences by examining some of the existing theoretical perspectives on ERP system and internal processes.

2.3.8 Theoretical Perspectives on ERP and Internal Processes

The institutional theory helps account for the use of ERP system in firms. It helps account of the business value of an ERP system in internal processes. According to Scott (2008), the institutional theory endeavors to account for or describe the profound and more effective aspects of how institutions are established, sustained, altered and dissolved. The institutional theory deals with the pervasive influence of institutions on human behavior such as the processes and mechanisms by which structures, including routines, rules, and norms on social behavior are ordered.

It posits that Institutions are multifaceted, durable, resilient social structures, made up of symbolic elements, social activities, and material resources Scott (2008). Applying the institutional theory to ERP and business internal processes, it can argue that the ERP systems facilitate the creation of sustained standard of conducting business internal processes. It facilitates the establishments of resilient means of conducting business processes and the realization of standards in the processes (Hsu, 2013).

2.3.9 Empirical Review ERP on Support of Internal Processes

According to Spano and Bello (2010) an ERP can be considered as a software application that addresses firm's needs by assuming a process view as opposed to a functional view approach to ascertain the attainment of organizational strategic objectives by effectively integrating organizational functions and processes. Bosilj and Spremic (2004) explain that businesses processes are all the tasks and activities that cross-conventional organizational and functional boundaries and that IT offers the best mean of integrating these activities and tasks. Mwirigi (2014) has argued that an ERP system support a spectrum of activities in modern organizations including sales, billing, marketing, human resource management, quality control and production.

Zeng *et al.* (2012) have contended that ERP systems do improve efficiency of organizational processes and lead to cost reduction. Spano and Bello (2010) argue that ERP are able to complement and supplement organizational processes since they are designed to do just that. Bosilj and Spremic (2004) that ERP systems are normally created to supplement business functions including manufacturing, processing and distribution.

In other words, these systems are established to provide, automate support to wide-ranging business processes. Therefore, ERP systems facilitate not only facilitate the integration of organizational processes, it also enhances standardization of processes across multiple business units with the goal of improving efficiency and generation of profits Bosilj & Spremic (2004); Botta & Millet (2006).

Furthermore, these systems are considered highly significant in their support of decision-making. Ucakturk and Villard (2013) have argued that they increase the availability of information helping the companies to have information in real time to make wise decisions and accurate prognostics regarding the organization. One such crucial support can be observed in the health sector, where the Clinical Decision Support (CDS) system facilitates disease diagnosis and surveillance Berner (2009). This is in line with Kelton *et al.* (2010) study which found that the implementation of ERP systems affects decision-making processes in various contexts.

2.3.10 Empirical Review: ERP on Access to Information

Shuhaimi *et al.* (2016) contend that one of the most important and significant impact of ERP systems in firms is the facilitation of access to appropriate operational data in real time. Arnold (2006) contends that these systems satisfy management needs for informed decision making

through making access to crucial information accessible to managers in real time. This possible because ERP systems allow for the collection and storage of large amounts of data in centralized database Shuhaimi et al. (2016). The firm is therefore able to maintain constant and precise information traversing personnel, units and departments and attain a complete and uninterrupted information flow Al-Tarawne (2012); Nooriae (2012).

The data stored in the databases can be used directly or the organization can use other forms of data mining techniques and technologies to make the data more suitable for managerial decisions McForland (2012). Ponorica *et al.* (2013) makes a similar observation when they argue that ERP systems provide consistency and accuracy of information and hence improve the managerial decision-making processes. Every member of organization depending on the kind of information they are allowed to access is able to access the information they need to perform their tasks.

Other studies have found that managers in organization currently consider ERP systems as capable of generating very important information that is not important to the management but to the rest of the employees in a firm. Some key information that can be obtained in the ERP systems includes financial and non-financial information Gavrea *et al.* (2011); Lee *et al.* (2004). The financial information that managers and employees can obtain from or generate from ERP systems and databases are diverse. These include net profit, profitability, return on assets, share prices, installation, and maintenance costs.

The non-financial information included organizational learning processes and internal processes including such things as decision made, meetings and records customer feedback, complaints and satisfaction Shuhaimi *et al.* (2016); Lee *et al.* (2004). Shuhaimi *et al.* (2016) argue that ease of access and control of information in the databases could permit the organization to generate and manipulate various types of financial and managerial reports and customize them depending on user's needs. Therefore, most scholars seem to agree that a successfully implemented ERP system positively contributes to access to information in the firm.

2.3.11. Opportunities of ERP system

According to Hossain, Patric and Rashid (2002) The adoption of an ERP system will provide an opportunity to introduce new procedures that will eradicate existing inefficiencies. Attitudes favorable to the adoption of ERP systems will be enhanced to the extent that ERP systems are perceived as agents of changed processes. Most ERP vendors provide an opportunity to update

procedures and align with perceived best practices to meet changing business needs more quickly Goeun (2013). As stated by Priya (2016) Furthermore, integrated system architecture is a major component of the system as the integration enables an enterprise to access the same system across different demographics. This software is also responsible for increasing performance by reducing unnecessary delay of process. According to Mafaz (2005) Organizations in developed countries have recognized ERP systems as effective management systems leading to excellent planning and scheduling capability and significant improvements in productivity. Forch, Kieschnick, Aldridge and Shorter (2007) Human resources functions can be improved through ERP by removing redundancy and tediousness of daily activities.

2.3.12 Challenge of ERP System

Adoption of any system has its own challenges mainly when the project is new to the organization. According to Goeun (2013) In spite of ERP's significant growth there are a number of challenges that companies may encounter when implementing ERP. BooYoung (2007) stated

Many engineering and construction firms know how beneficial ERP systems are, but they still hesitate to adopt these systems due to their high cost and risk. The most known challenge resistance to change from the staff, lack of support from the top management, organizational culture and lack of continuous training. This issue also noted by Goeun (2013) Shanab, Shehab and Khairallah (2015) ERP systems are complex systems that face high probability of failure. Implementing such systems need careful planning and guarding against factors for failure. in addition, according to Sanchita (2013) there are challenges during adoption. According to Bingi, sharama and Godla (2006) implementing an ERP causes massive change that needs to be carefully managed to reap the benefits of an ERP solution. According to Goeun (2013) ERP implementations have sometimes failed to achieve the organization's targets and desired outcomes.

2.3.13 Conceptual frame work

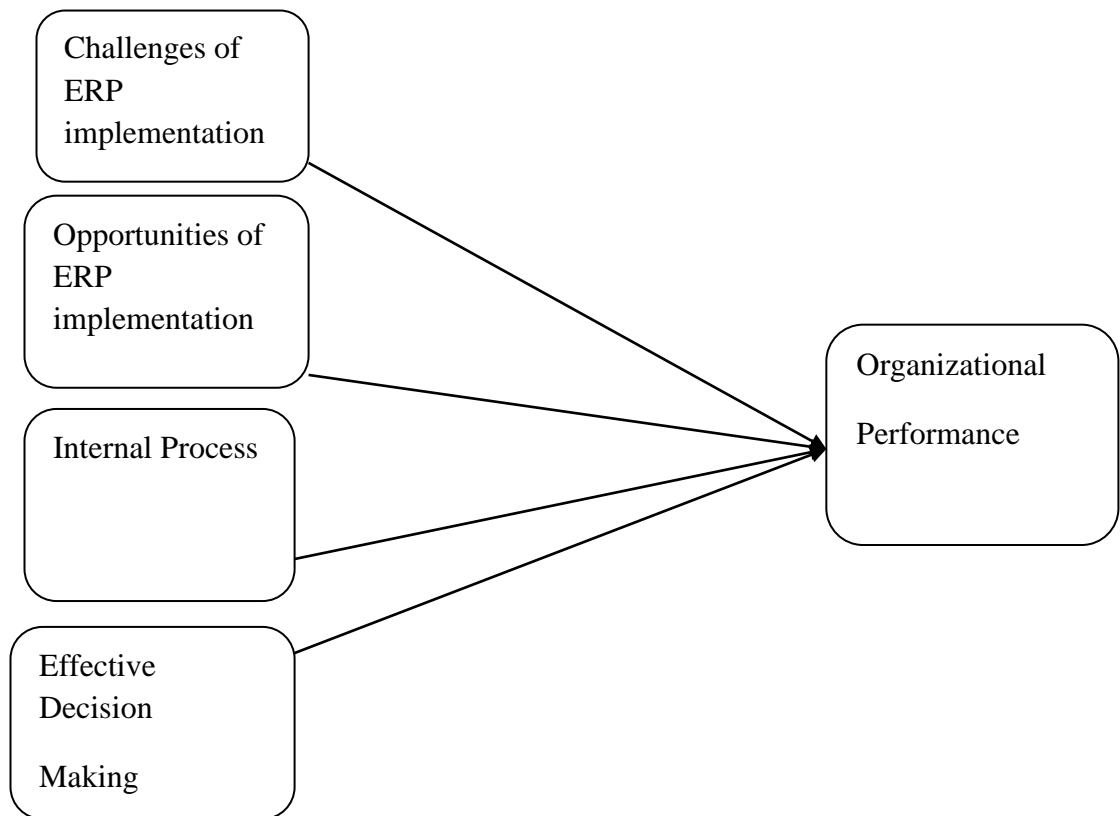
Conceptual framework as a concise description of the phenomenon under study accompanied by a graphical or visual depiction of the major variables of the study Gitahi & Ogollah (2014). According to Gitahi & Ogollah (2014), conceptual framework is a diagrammatical representation that shows the relationship between dependent variable and independent variables. In the study,

the conceptual Framework is look at the effect of ERP implementation challenges and opportunities on organizational performance at Ethiopian Steel.

Figure 2.1: Conceptual Framework

Independent Variable

Dependent Variable



Source: - Developed for the research (2019)

CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

3.1 Research Design

The researcher used mixed research design explanatory and descriptive method. For gathering of information from the organization people's opinions and attitudes, descriptive research design is appropriate. This is a very efficient way of obtaining information that is needed to describe opinions, views and attitudes of the company's staff on the effect of enterprise resource planning implementation effect on organizational performance in Ethiopian steel plc. And it would be explanatory, because it examines the relationships between four independent variables, which are internal process, effective decision making, Challenges of ERP implementation, Opportunities of ERP implementation, and the dependent variable organizational performance.

3.2 Population and Sampling Techniques

3.2.1 Population

Population refers to the aggregate of all individuals with specific characteristics Richard (2006). The total populations of Ethiopian steel plcare 110 individuals. The population consists of employees in various positions top management, middle level management, operational level and staffs (non-Management).

Table 3.1 Population

Category	Population	Percentage
Top level Management	6	5.45%
Middle level management	6	5.45
Operational level management	9	8.18
Staffs(non-management)	89	80.91
Total	110	100%

Source: - Ethiopian steel Plc employees' profile (2019)

3.2.2 Sampling Design

The researcher used disproportionate stratified sampling design to select the substance that represents the total population. Using this method, the sample would be separated into different strata at the organization hereby the divisions are according to their level.

3.2.3 Sampling Technique

Robinson (2002) explains that the study objectives determine the methodology for deriving sample for inclusion in the study. Blanche *et al.* (2006) adds further that the sampling process is not abstract but is guided by the scope and parameters of the study as well as the population and the objectives of the study. The researchers used disproportionate stratified random sampling. This sampling technique involves dividing the population into strata or a number of groups, which in this case is; the Top-Level Management, Middle Level management, Operational level Management and Staff (non-Management). The research then conducted disproportionate random sampling. See table 3.2 below sample size distribution

3.2.4. Sample Size

The sample size refers to the proportion of individuals that are actually chosen to participate in the research Thornhil & Saunders (2000). The appropriate sample size is generated by applying the statistical formula for sample size proposed by Yamane's (1967);

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

n is the sample size,

N is the population size,

e is the level of precision confidence to have in the data or degree of freedom which is 95% for this study.

Thus, the sample size comprised of 86 individuals because of researcher could not able to cover branches far from Head office due to budget and time constraint, so researcher used sampling rather than census.

Table 3.2 sample Size distribution

Sample size category	population	sample Size	Percentage
Tope level Management	6	3	3.49%
Middle level Management	6	3	3.49
Operational level management	9	6	6.98%
Staff(non-management)	89	74	86.05%
Total	110	86	100%

Source: -Own survey (2019)

3.3 Types of Data, Tools and Instruments of Data Collection

3.3.1 Procedures of Data Collection

Blanche *et al.* (2006) and Bless *et al.* (2006) explain that data collection is the technique or strategy for obtaining or aggregating the information from the respondents. Data collection implies the method that the researcher uses whether it is the use of questionnaires, interview schedules, face-to-face interviews or telephone interviews or whether it is participation and observation Thornhill& Saunders (2000).

The researcher used both primary and secondary source of data for collecting of valuable data like questionnaire, interview and ERP manuals.

3.4 Types of Tools

To investigate the associations between the variable were conducted by use of IBM Statistical Package for Social Sciences (SPSS) version 20 tools.

3.5 Methods of Data Analysis

This researcher used both quantitative and qualitative method of data analysis. To ensure easy analysis, the questionnaires were coded accordingly. The quantitative analysis involved descriptive analyses. The analysis process involved the process of transforming of raw data into tables, with frequency distribution and percentages to provide key answers to the research questions. Through descriptive statistical technique, descriptive narration and multiple regression analysis were conducted between variables to permit further interpretation of the data.

3.5.1 Descriptive Analysis

The descriptive statistics results were presented by table, frequency distribution and percentage to give summary of the data.

3.5.2 Multiple regression Analysis

Multiple regression analysis used to describe the relationship between factors affecting organizational performance at Ethiopian Steel Plc. The relationship between independent variable was estimated to linear. The generic equation expressed in the form of

$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \dots + \beta_n X_n + e$, Y = dependent variable, α is a regression constant, β_1 , β_2 , β_3 and β_n are the beta coefficients, X_1 , X_2 , X_3 and X_n are independent variables and e is the error term. The independent variables were measured from Likert scale data collected via questionnaires and sub categorized into four independent variables (opportunities, challenges, decision and internal process,) whereas dependent variable was performance. Thus, the general model for this study is

$O_{\text{organizational performance}} = \alpha + \beta_1(\text{Opportunity}) + \beta_2(\text{challenges}) + \beta_3(\text{decision}) + \beta_4(\text{internal process}) + e$

3.5 Validity

According to Kothari (2004), validity is the most critical criterion and indicates the degree to which an instrument measures what it is supposed to measure. Validity is the level to which difference found with a measuring instrument reflects true differences among those being tested.

3.6 Reliability

The test of data reliability is another important test of sound measurement, Emishaw Lakew (2017). A measuring reliable if it provides consistent result (Kothari, 2004). For this specific research the researcher used Opportunities of ERP implementation, challenges of ERP implementation, internal process, effective decision making and organizational performance as a construct.

To estimate the reliability of the questionnaire a pilot sample of 25 people and Cronbach Alpha was computed by SPSS software. Table 3.3 shows both the total and the pilot sample test result of reliability in the questionnaire.

Table 3.3: Reliability Statistics

Variables	Cronbach Alpha		Number of Items
	25 Respondents of Pilot Sample	Total Sample	
Performance	0.8031	0.940	5
Opportunities	0.812	0.895	5
Challenges	0.835	0.904	5
Decision	0.821	0.916	5
Internal process	0.842	0.932	5

Source: -Own Survey (2019)

In the case of pilot test sample and total sample, on the whole Cronbach Alpha is greater than 80% it indicated that the high reliability of the questionnaire.

3.7 Ethical Consideration

The research gave consideration to ethical issues like confidentiality and privacy. According to Cooper (2003), ethics is the norms or standards of behavior that guide moral choices about our behavior and our relationships with others. In addition, the goal of ethics in research is to ensure that no one is harmed or suffer adverse consequence from this research activity. Participants and respondents gave full information on the purpose and objective of the study in order for them to make informed decisions. Additionally, all information gathered and used for the sole purpose of this research study.

CHAPTER FOUR

RESULTS AND DISCUSSION

4.1 Results and Findings of the Study

The purpose of this study was to analyze the effects of enterprise resource planning implementation on organizational performance in Ethiopian steel plc. This chapter presented the analyzed results and findings of the research on the research questions concerning the data collected from the respondents.

4.2 Demographics of Respondents Rate

This section discussed the results of the general information about the respondents, including age, gender, education level, position, and service of year in the organization. Tables 4.1 shows that out of the 86 questionnaires which were distributed, only 80 were returned. The overall respondent rate was thus found to be 93% and was more sufficient to proceed the data analysis. The respondents were indicated their gender and the results presented in Table 4.1 62.5% were male and 37.5% were female. This implies that majority of the respondents who took part in the study were male. The respondents were point out their age and the results presented in table 4.1 From the findings, 35% of the respondents who constituted the majority were in the age bracket of 31-40 years, 33% were in the age bracket of below 30 years, 8% were in the age bracket of 41-50 years, 4% were in the age bracket of above 50 years. The respondents were asked to indicate their level of education, findings are as presented in the results indicated that majority of the respondents (36%) were degree holders, 23% were below diploma holders, 10% diploma holders and 11% had a Master's Degree. The respondents indicated their position in the organization and the findings presented 68% of the respondents who were the majority belonged to staffs (non-management), 6% were in the operational level, 3% were in the top-level management and 3% were in the middle management level.

Table 4.1 Respondents Rate by demographics

Category	Frequency	Percentage
Responded	80	93%
Did not respond	6	7%
Total	86	100%
Gender	Frequency	Percent
Male	50	62.5
Female	30	37.5
Total	80	100.0
Age Range	Frequency	Percent
18-30	33	41.3
31-40	35	43.8
41-50	8	10.0
above 51	4	5.0
Total	80	100.0
Position	Frequency	Percent
Top Level	3	3.8
Middle Level	3	3.8
Operational Level	6	7.5
Staff(non-management)	68	85.0
Total	80	100.0
Years of service	Frequency	Percent
0-5	16	20.0
6-10	21	26.3
11-15	23	28.8
More than 15 Years	20	25.0
Total	80	100.0
Level of education	Frequency	Percent
below Diploma	29	26.4
Diploma	14	12.7
Degree	50	45.5
Master	17	15.5
Total	110	100.0

Source: - Own survey (2019)

From the above table we conclude that these researches included majority of the population which is important for the research conducted. Because of they are educated, under good age bracket and more experience so we assumed that they contributed reliable data for this research.

4.3 Descriptive Statistics of Variables organizational performance

Table 4.2 Organizational Performance

S/n	Statements	Scale	Number of Respondents	Percentage
1	ERP is improved Company's Performance after implementation	Strongly Disagree	1	0.9
		Disagree	26	23.6
		Neutral	16	14.5
		Agree	54	49.1
		Strongly agree	13	11.8
2	After ERP implementation Report delays reduced	Strongly Disagree	0	0
		Disagree	25	22.7
		Neutral	20	18.2
		Agree	42	38.2
		Strongly agree	23	20.9
3	ERP implementation has realized the expected goal and objectives	Disagree	20	18.2
		Neutral	20	18.2
		Agree	47	42.7
		Strongly agree	23	20.9
4	ERP system is an important aid to company's performance	Disagree	18	16.4
		Neutral	14	12.7
		Agree	57	51.8
		Strongly agree	21	19.1
5	ERP system has positive effect on the productivity of organization.	Disagree	16	14.5
		Neutral	11	10.0
		Agree	60	54.5
		Strongly agree	23	20.9

Source: - own survey (2019).

So, from the table we concluded that most respondents answered that ERP implementation can improve organizational performance at Ethiopian Steel Plc by reducing delays of report, realized expected goals and objectives, aid to company performance and organizational productivity.

Table 4.3 Opportunities of ERP Implementation

S/n	Item	Scale	Number of Respondents	Percentage
1	ERP implementation has an opportunity to reduce manual process	Disagree	13	11.8
		Neutral	23	20.9
		Agree	63	57.3
		Strongly agree	11	10.0
2	ERP implementation has benefit to integrate the whole business process throughout all department	Strongly Disagree	0	0
		Disagree	12	10.9
		Neutral	20	18.2
		Agree	58	52.7
		Strongly agree	20	18.2
3	ERP implementation has an opportunity of provide reliably and timely information	Disagree	11	10.0
		Neutral	26	23.6
		Agree	55	50.0
		Strongly agree	18	16.4
4	ERP system is convenient and flexible for system user	Disagree	14	12.7
		Neutral	25	22.7
		Agree	51	46.4
		Strongly agree	20	18.2
5	Company has an opportunity to improve its performance due to ERP implementation.	Disagree	13	11.8
		Neutral	27	24.5
		Agree	48	43.6
		Strongly agree	22	20.0

Source: - own survey (2019)

As per the above table the result shows that from the listed statement all of respondents agreed that ERP implementation had positive effect and opportunities to get better organizational performance at Ethiopian Steel Plc. Thus, ERP implementation had an opportunity for the organizational performance like: - reduce manual process, data integration, give reliable and timely information, flexible and improve performance of organization.

Table 4.4 Challenges of ERP implementation

S/n	Item	Scale	Number of Respondents	Percentage
1	ERP implementation may fail due to resistance to change	Disagree	11	10.0
		Neutral	18	16.4
		Agree	42	38.2
		Strongly agree	39	35.5
2	Network problem is hinder for implementation of ERP	Strongly Disagree	0	0
		Disagree	12	10.9
		Neutral	20	18.2
		Agree	48	43.6
		Strongly agree	30	27.3
3	ERP implementation may fail due to lack of management commitment	Disagree	11	10.0
		Neutral	15	13.6
		Agree	55	50.0
		Strongly agree	29	26.4
4	ERP implementation incur high cost	Disagree	11	10.0
		Neutral	14	12.7
		Agree	61	55.5
		Strongly agree	24	21.8
5	Lack of proper support from client	Disagree	16	14.5
		Neutral	14	12.7
		Agree	47	42.7
		Strongly agree	33	30.0

Source: - own survey (2019)

Thus, challenges of ERP implementation like: -resistance to change, network problem, lack of management commitment, incur high cost and lack of support from client are reduced organizational performance at Ethiopian steel plc and it is supported by respondent.

Table 4.5 Effective Decision Making

S/n	Item	Scale	Number of Respondents	Percentage
1	ERP empowered people, generate optimal value, drive productivity and improve decision-making.	Strongly agree	2	1.8
		Disagree	13	11.8
		Neutral	14	12.7
		Agree	57	51.8
		Strongly agree	24	21.8
2	ERP a wide range of analytical and reporting tools can help gain insight into business performance.	Strongly Disagree	0	0
		Disagree	13	11.8
		Neutral	19	17.3
		Agree	54	49.1
		Strongly agree	24	21.8
3	ERP easy-to-use tools to enable to work quickly and make smart, proactive decisions.	Disagree	11	10.0
		Neutral	15	13.6
		Agree	52	47.3
		Strongly agree	32	29.1
4	ERP system improves smooth flow of information throughout in the organization boundaries	Disagree	12	10.9
		Neutral	14	12.7
		Agree	58	52.7
		Strongly agree	26	23.6
5	ERP help to make the right decision and achieving organizational goals	Disagree	14	12.7
		Neutral	20	18.2
		Agree	54	49.1
		Strongly agree	22	20.0

Source: - own survey (2019).

As per the result we can concluded that to make effective decision ERP implementation had the most important variable that affect performance of the organization at Ethiopian Steel Plc. Thus, ERP implementation improve organizational performance by give right decision at the right time like: - empower people, generate optimal value, derive productivity, enable to work quickly and make smart proactive decision. It implies that their decision making is good.

Table 4.6 Internal Process

S/n	Item	Scale	Number of Respondents	Percentage
1	ERP implementation facilitate internal process	Strongly agree	2	1.8
		Disagree	14	12.7
		Neutral	21	19.1
		Agree	46	41.8
		Strongly agree	27	24.5
2	ERP implementation has positive effect on internal communication process	Strongly Disagree	0	0
		Disagree	14	12.7
		Neutral	23	20.9
		Agree	40	36.4
		Strongly agree	33	30.0
3	ERP system reduce complexity of reports	Disagree	17	15.5
		Neutral	16	14.5
		Agree	46	41.8
		Strongly agree	31	28.2
4	ERP Automate and simplify internal processes across the organization.	Disagree	20	18.2
		Neutral	14	12.7
		Agree	48	43.6
		Strongly agree	28	25.5
5	ERP considered as Fuel business, agility and growth	Disagree	19	17.3
		Neutral	18	16.4
		Agree	38	34.5
		Strongly agree	35	31.8

Source: - own survey (2019)

From this we can concluded that regarding of internal process the organizational performance of Ethiopian Steel Plc is good. Thus, ERP implementation can facilitate internal process, ways of internal communication, reduce complexity of report, automat and simplify allover process of organization and we can consider as fuel business, agility and growth.

4.4 Regression Analysis

In this section regression analysis for factors affecting organization performance had been undertaken to understand the relationship between organization performance and independent variables.

4.4.1 Diagnosis Test

Before applying regression analysis, various tests were conducted in order to certify the appropriateness of data as follows:

4.4.2 Multicollinearity Test

In this section the correlation between independent variables; opportunities, challenges, decision and internal process had been presented and analyzed. A Variance Inflation Factor (VIF) was used to make sure the correlation between independent variables.

Table 4.11: Collinearity Statistics

Variables		Collinearity Statistics	
		Tolerance	VIF
	OERP	.390	2.566
	CERP	.544	1.840
	EDM	.295	3.384
	IP	.367	2.534

a. Dependent Variable: OP

Source: Own survey (2019)

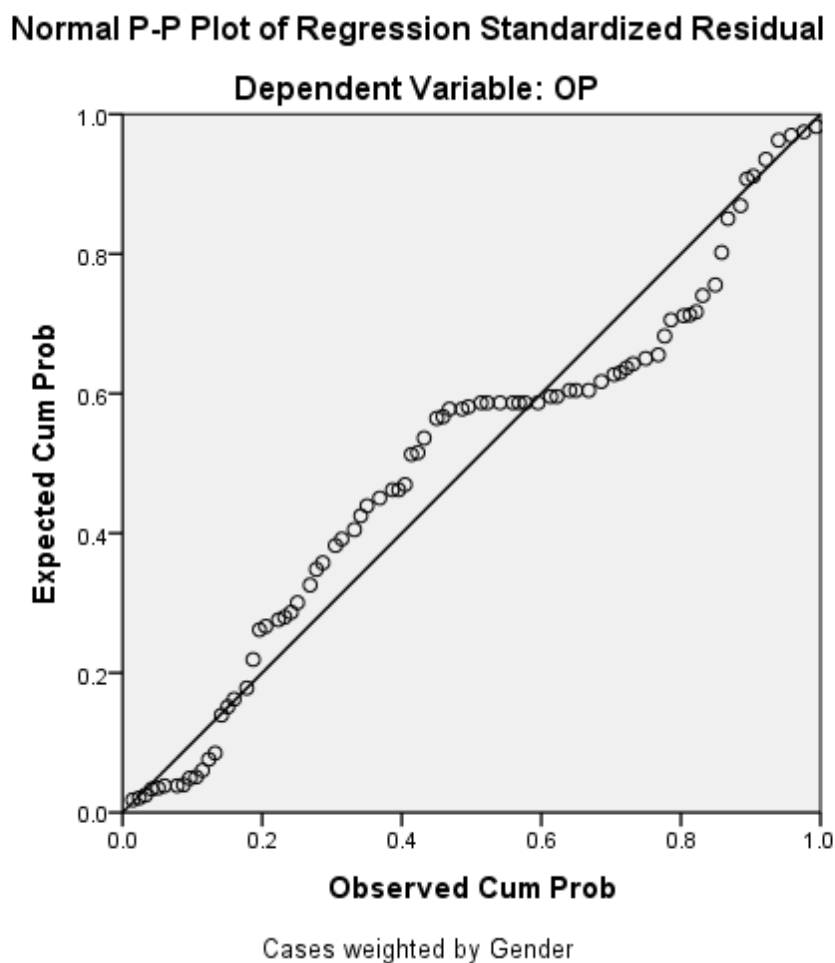
According to Keith (2006) the rule of thumb for large VIF value is 10 and a small value for tolerance is 0.1. Large VIF values and small values for tolerance show the presence of multicollinearity. As shown in the above table 4.11, all VIF values are below ten and all tolerance values are above 0.1. Thus, there is no an indication of multicollinearity problem between implementation of ERP implementation on organizational performance and independent variables.

4.4.3 Linearity Test

Linearity refers to the degree to which the change in the dependent variable is related to the change in the independent variables. To define the relationship between the dependent variable OP (organizational Performance) and the independent variables OERP (Opportunities), CERP(Challenges), EDM(Decision), and IP (Internal process) is linear; plots of the regression residuals through SPSS software used.

The scatter plot of residuals shows that the points generally follow the normal (diagonal) line with no strong deviations. This indicated that the residuals are normally distributed. Therefore, the result proposes the relationships are trying to predicted is linear between performance of the organization and ERP implementation within the company.

Figure 4.1 Normal Point Plot of Standardized Residual



Source: Own survey (2019)

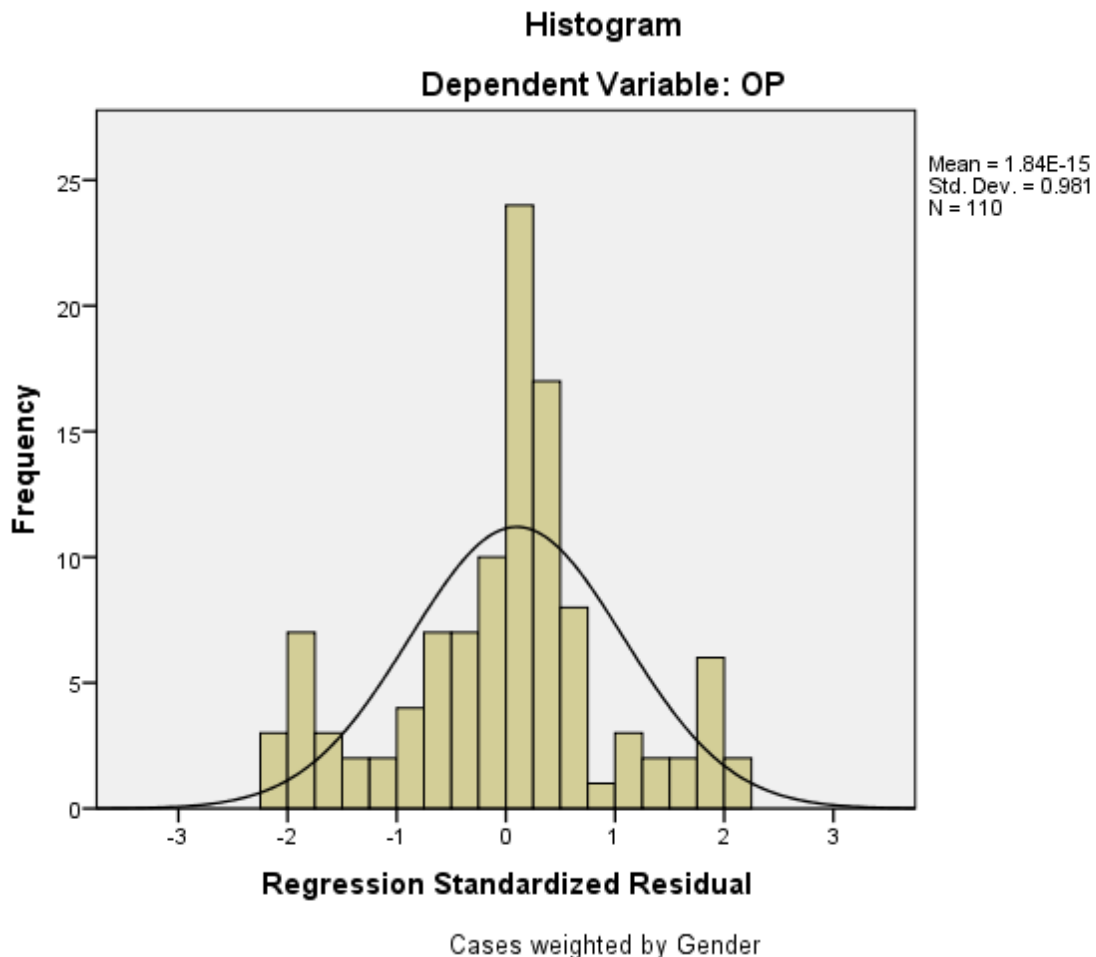
4.4.4 Normality Test

As per the Classical Linear Regression Models assumptions, the error term should be normally distributed or expected value of the error's terms should be zero ($E(u_t) = 0$).

Figure 4.2 shows the frequency distribution of the standardized residuals compared to a normal distribution. As we can see, many of the residuals are fairly close. Moreover, the histogram is bell shaped which lead to infer that the residual (disturbance or errors) are normally distributed. Thus, no violations of the assumption normally distributed error term.

Therefore, from an investigation of the information presented in the three tests the researcher concluded that there are no significant data problems that would lead to say the assumptions of multiple regressions have been seriously violated.

Figure 4.2 Frequency Distribution of Standardized Residual



Source: Own survey (2019)

4.5 Regression Analysis between organization Performance and Independent Variables

Regarding overall regression model, R- Squared is measured the goodness of fit of the independent variables in explaining the variations in organization performance measures of independent variables (opportunities, challenges, decision and internal process).

Table 4.12 R-square

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.822 ^a	.675	.662	.51859

a. Predictors: (Constant), IP, CERP, OERP, EDM

b. Dependent Variable: OP

Source: - own survey (2019)

The R- square value for the regression model was 0.675. This implied the independent variables; opportunities, challenges, decision and internal process in this study explained about 67.5% of the variation in the level of organizational performance. The remaining 32.5% of the variation in the level of organizational performance at Ethiopian Steel Plc explained by other variables which are not included in this research. Thus, from the finding we can conclude that almost main factors that affected organizational performance due to implementation of ERP included in this research and the reliability of data is more interested.

Table 4.13 ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	58.615	4	14.654	54.488	.000 ^b
	Residual	28.239	105	.269		
	Total	86.854	109			

a. Dependent Variable: OP

b. Predictors: (Constant), IP, CERP, OERP, EDM

Source: - own survey (2019)

From the ANOVA test in table 4.13 it shows the table Sig. value 0.05 is greater than the calculated Sig. value 0.000. It reflects there was a statistically significant correlation between dependent variable and independent variables at 5% significant level. Which means the independent variables; opportunities, challenges, decision and internal process have great

contribution to improve organization performance at Ethiopian Steel Plc. But it does not mean that all these variables have equally significant correlation with performance.

Beside the F statistics (54.488) which is used to measure the overall test of significance of the model was presented, the model is well fitted at 5 percent level of significance. Thus, ERP implementation significantly affected of the organizational performance.

Table 4.14: Regression Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
	(Constant)	-.161	.266		-.605	.546
	OERP	.592	.108	.488	5.480	.000
	CERP	.068	.060	.086	1.137	.004
	EDM	.148	.113	.134	1.307	.003
	IP	.204	.090	.208	2.270	.002

a. Dependent Variable: OP
 *** Significant at $p < 0.01$ and ** Significant at $p < 0.05$

Source: Own survey (2019)

Coefficient analysis shows the relationship between dependent variable and independent variables. According to Sig. value of OERP (opportunities), CERP (Challenges), EDM (decision) and IP (internal Process) are statistically significant at 5 percent. Which means; opportunities, challenges, effective decision making and Good internal process have great contribution to improve organizational performance at Ethiopian Steel Plc.

All independent variables have a positive relationship with organizational performance. A positive coefficient of Opportunity (0.488) implies that an improvement in opportunities for the improvement of organizational performance level. Challenges have a positive coefficient of 0.086; effective decision making has also a positive coefficient of 0.134; internal process Similarly has a positive coefficient of 0.208. This means good internal process has a positive contribution for the improvement of organizational performance at Ethiopian Steel Plc. Regarding the rank of predictor variables, opportunities of ERP implementation is the major predictor while challenges of ERP implementation is the least predictor of organizational performance.

In the output indicated in table 4.14, all predictor variables (opportunities, challenges, decision and internal process) have p-value which is less than 0.05. These findings provide significant

support for the opportunities, challenges, decision and internal process literature which advocates that the variables have an effect upon organizational performance.

The findings are also consistent with other research findings for example Ucakturk and Villard (2013) find that ERP systems are most reliable source of information for managerial decision-making. According to Gekonge (2005) as quoted by Kairu et al. (2013), internal processes perspective focuses on the internal business results that lead to financial success and satisfied customers to meet the organizational objectives and customers' expectations, organizations must identify the key business processes at which they must excel.

WANYOIKE (2017) the study found that the majority of the respondents thought that ERP systems had a positive effect on the performance of the firm

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 SUMMARY OF FINDINGS

In this study, it was designed to examine the effect of ERP implementation on organizational performance at Ethiopian Steel Plc. Also try to address the demographic characteristics of respondents and their opinion towards of ERP Implementation Company's performance in Ethiopian Steel Plc. A sample of 86 employees was taken for the study using disproportionate stratified sampling technique. In the process of answering questionnaires that included demographic characteristics, opportunities of ERP implementation, challenges of ERP implementation, Effective decision making and internal process in Ethiopian Steel Plc in a closed ended and Likert scales was designed. Moreover, structural interview was held with top managements of Ethiopian steel plc at Head office. After data has been collected descriptive data analysis was done on four main variables which are opportunities, challenges, decision and internal process. Based on respondents and interview results the main finding of this study summarized as follows.

we conclude that these researches included majority of the population which is important for the research conducted. Because of they are educated, under good age bracket and more experience so we assumed that they contributed reliable data for this research.

ERP implementation had an opportunity for the organizational performance like: - reduce manual process, data integration, give reliable and timely information, flexible and improve performance of organization.

To make effective decision ERP implementation had the most important variable that affect performance of the organization at Ethiopian Steel Plc. Thus, ERP implementation improve organizational performance by give right decision at the right time.

ERP implementation can facilitate internal process, ways of internal communication, reduce complexity of report, automat and simplify allover process of organization and we can consider as fuel business, agility and growth.

Challenges of ERP implementation like: -resistance to change, network problem, lack of management commitment, incur high cost and lack of support from client are reduced organizational performance.

In the ANOVA analysis the result shows that there is significant relationship between ERP implementation and organizational performance.

In the multiple linear regression analysis, the result found that all variables which are opportunities, challenges, decision and internal process had positive significant effect on organizational performance at Ethiopian Steel Plc. The R square value shows that 67.5% of variation in their performance was explained by the factors affecting the performance of the organization.

5.2 Limitation of the study

The research had many difficulties that affected the achievement on its objectives like lack of related studies, time constraint, transport problems, distant locations of branches, unwillingness of respondent and influence research findings in some extent like sample selection bias. Sample selection bias not much but a little bit affects relevance of collected data.

5.3 Conclusions

The finding of this research is the same as with the theoretical as well as previous empirical findings. The researcher found that there is a significant positive relationship between all predictor variables and organizational performance.

The result suggests that there is positive relationship between opportunities and performance. The opportunities of ERP implementation are the major predictor of organizational performance. ERP have many opportunities this also supported by the respondent. It has significant positive effect on the organizational performance. The opportunities include it decision making more effective, minimize time spent, increase level of useful information, have effective management system, effective flow of internal process, enhance performance largely, respondents had a very good view concerning opportunities of ERP implementation in Ethiopian Steel plc. This response clearly indicated that because of implementing ERP system the company obtaining almost all opportunities.

Effective decision making and internal process also have significant positive effect on the organizational performance at Ethiopian Steel Plc

Challenges of ERP implementation had reduced performance of organization. Most of the respondents were satisfied since this system makes the work done more automated one, effective, save time and energy too by passing its negative challenges.

ERP systems, by its nature facilitate the internal process within the organization. The ERP systems also have the ability to facilitate other process including the accounting processes and

access to both financial and non-financial information. Moreover, the ERP systems are capable of supporting information gathering and sharing both horizontally between departments and vertically between the department and their respective leadership or top-level management. The effect of the ERP systems on the organizational performance in terms of facilitating internal process is therefore clear.

Based on the result of descriptive analysis found that the performance of organization is good by overpass challenges of ERP implementation problems.

5.2 Recommendation

Managers are responsible for ensuring that ERP system implementation are working in the organization and properly follow up of the effects on the performance of organization. It is evident that organizational performance is depending on opportunities, challenges, decision and internal process in the organization.

Based on the study results the researcher would like to onward the following recommendations for the concerned bodies.

This study shows that ERP implementation has many challenges, like incur high cost, resistance to change, lack of management commitment, network problem and lack of proper support from client. Thus, this is the indicators of problem of system due to negligent of management. Therefore, managements of Ethiopian Steel plc should be given attention for the challenges of systems that rated by its employee as hinder of performance of the company. Further this management of company should understand factors that affect performance of their organization negatively or positively not only listed in this research rather go for other studies by own the management team or by hiring other experts of the system. By reducing the listed challenges management can improve performance of organization as well as keep of other variable which positive input for performance of the firm.

5.3. Recommendation for further research

There is need for further research to investigate effects of ERP implementation had positive effect on the organizational performance at Ethiopian Steel plc, because this study not included all variables and branches of the organization that affect organizational performances.

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Appendix

QUESTINNARIES

ST. MARY'S UNIVERSITY

SCHOOL OF GRADUATE STUDIES

MBA- DEPARTMENT OF GENERAL BUSINESS ADMINISTRATION

QUESTIONNAIRE

The purpose of this study is examining the effect of ERP implementation challenges and opportunities on organizational Performance case study at Ethiopian Steel Plc. This questionnaire is meant to secure relevant data on ERP implementation effect, believed that your invaluable support in responding to the questions raised is paramount importance to the success of the study. Besides, your response will be kept strictly confidential. The questioner contains three parts. Please note,

For Close ended questions answered by putting a tick mark (✓) and for open ended questions please write short answers

-Writing your name is not required

- Make Sure that total Number of pages are 5 (Five)
- It has no intention except for academic purpose
- After filling this questionnaire please return to the researcher
- If you Needs any clarification, you can contact by using the following address

Name Getachew Nega
Phone no +251 910-44-43-89
E-mail: - negagetachew19@gmail.com

Thank you in Advance!

Part I
Personal data

1. Gender

1) Male

2) Female

2. Age Range

1) 18- 30

2) 31-40

3) 41 -50 4) above 50

3. Level of education

1) Below Diploma

2) Diploma

3) Degree

4) Masters

5) PhD

4. Years of service

1) 0- 5 years

2) 6 to 10 years

3) 11 to 15 years

4) More than 15 years

5. Position

1) Tope Levèl

2) Middle Level

3) Operational Level

4) Staff (non-management)

Part II

Please rate the degree of the effect of ERP implementation that affect organizational Performance listed below by ticking (√).

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

	Organizational performance	scale				
		1	2	3	4	5
1	ERP is improved Company's Performance after implementation					
2	ERP enables organizations to restructure business processes for accelerated organizations performance.					
3	ERP implementation has realized the expected goal and objectives					
4	The ERP system is an important aid to company's performance.					
5	The ERP system has positive effect on the productivity of organization.					
	Opportunities of ERP implementation	1	2	3	4	5
1	ERP implementation has an opportunity to reduce manual process					
2	ERP implementation has benefit to integrate the whole business process throughout all department					
3	ERP implementation has an opportunity of provide reliably and timely information					
4	ERP system is convenient and flexible for system user					
5	Company has an opportunity to improve its					

	performance due to ERP implementation.					
	<i>Challenges of ERP implementation</i>	1	2	3	4	5
1	ERP implementation may fail due to resistance to change					
2	Network problem is hinder for implementation of ERP					
3	ERP implementation may fail due to lack of management commitment					
4	ERP implementation incur high cost					
5	Lack of proper support from client					
	Effective Decision Making	1	2	3	4	5
1	ERP empowered people, generate optimal value, drive productivity and improve decision-making.					
2	ERP a wide range of analytical and reporting tools can help gain insight into business performance.					
3	ERP easy-to-use tools to enable to work quickly and make smart, proactive decisions.					
4	ERP system improves smooth flow of information throughout in the organization boundaries					
5	ERP help to make the right decision and achieving organizational goals					

	Internal Process	1	2	3	4	5
1	ERP implementation facilitate internal process					
2	ERP implementation has positive effect on internal communication process					
3	ERP system reduce complexity of reports					
4	ERP Automate and simplify internal processes across the organization.					
5	ERP considered as Fuel business, agility and growth					

If you have any additional opinion please list here under.

PART III

INTERVIEW

1. How ERP implementation affect your company performance?
2. What mechanism use to solve challenges of ERP implementation that affect organization performance?
3. What is the main contribution of ERP implementation from the point view of management?
4. When you implement ERP by what means facilitate internal process?

DECLARATION

I undersigned **Getachew Nega**, hereby declare that this thesis is my original work, prepared under the guidance of **Tiruneh Legesse (Assistant Professor)**. All sources of materials used for the thesis have been duly acknowledged. I further confirm that the thesis has not been Submitted either in part or in full to any other higher learning institution for the purpose of earning any degree.

Name

Signature

St. Mary's University, Addis Ababa

June, 2020

ENDORSEMENT

This thesis has been submitted to St. Mary's University, School of Graduate Studies for examination with my approval as a university advisor.

Advisor

Signature

St. Mary's University, Addis Ababa

June, 2020