ADDIS ABABA UNIVERSITY

COLLEGE OF BUSINESS AND ECONOMICS

DEPARTMENT OF MANAGEMENT

MASTER OF SCIENCE IN MANAGEMENT

THE EFFECT OF ENTERPRISE RESOURCE PLANNING IMPLEMENTATION ON HUMAN RESOURCE MANAGEMENT EFFECTIVNESS : THE CASE OF COMMERCIAL BANK OF ETHIOPIA.

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APRIL, 2022

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A THESIS SUBMITTED TO THE DEPARTMENT OF MANAGEMENT OF ADDIS ABABA UNIVERSITY IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF SCIENCE IN MANAGEMENT.

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DECLARATION

I, **YESHIEMEBET ARAGAE TSEHAYU** declare that this thesis is my original work and that all sources of the materials in the research paper have been properly acknowledged. The matter embodied in this research paper has not been submitted earlier for award of any Master degree.

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Statement of Certfication

This is to certify that the senior essay prepared by YESHIEMBET ARAGAE TSEHAYU, entitled; "The effect of Enterprise Resource Planning Implementation on Human Resource Management Effectiveness; the case of Commercial Bank of Ethiopia" and submitted in partial fulfillment of the requirements for MSC Degree in management with the regulations of the university and meets the accepted standard with respect to originality and quality.

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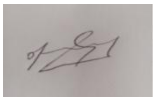
External Examiner Temesgen Belayneh (PHD) Signature _  Date __27/04/22__

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Acronyms

ATM Automated Teller Machine

CBE Commercial Bank of Ethiopia

CIM Computer integrated manufacturing

CM Change management

COM Compensation and benefit

EC Effective Communication

ERP Enterprise resource planning

IT Information Technology

HRIS Human Resource Information System

HRM Human Resource Management

MRP Material requirements planning

MRPII Manufacturing resource planning

ORGPRO Organizational productivity

REQ Recruitment and Selection

SPSS Statistical package for social science

TMS Top Management Support

TR Training and Development

UA User Acceptance

UT User Training

VS Vendor Support

Abstract

The objective of this study is to examine Human resource management effectiveness in context of ERP in Commercial Bank of Ethiopia. Quantitative research approach is used in the study. Explanatory and correlational research design is used to examine ERP implementation factors and their relationship with HRM effectiveness and organizational productivity of the bank. The study adopted simple random sampling technique to select 224 respondents from the total 509 target population of human resource department in head office of Commercial bank of Ethiopia. Furthermore, the finding of this study indicates that *four of the ERP implementation factors; top management support, effective communication, vendor support and user acceptance shows positive and significant result when directly related with organizational productivity. User training and change management are not statically significant predictors of organizational productivity. The findings also indicate that all the six ERP implementation factors have positive relationship with HRM functions except, effective communication and change management which are not statically significant predictor of training development, which indicates that effective communication and change management are inversely related with training and development. User training is not also a statically significant predictor of compensation and benefits, which indicates that user training is inversely related with compensation and benefits. The findings of the indirect relationship of ERP implementation factors with organizational productivity through the mediation of HRM effectiveness indicated that three of the independent variables (Effective communication, vendor support and user acceptance) are statically significant predictor of organizational productivity. On the other hand (Top management support, user training and change management) are not statically significant predictor of organizational productivity. Hence, HRM effectiveness have mediating role for half of the independent variables, and it doesn't have any mediating role for the remaining half independent variables. Based on the findings and conclusions Commercial Bank of Ethiopia should focus on giving sophisticated and continuous update and training for the staffs in order to use ERP on HRM effectively.*

Key Words: Enterprise resource planning, Human resource management, Organizational Productivity and Commercial Bank of Ethiopia.

CHAPTER ONE

INTRODUCTION

1.1 Background of the study

Enterprise Resource Planning (ERP) is software which helps organizations to integrate their information flow and business processes. They typically support the numerous departments and their functions within the organization by employing one database that collects and stores data in real time (Koech, 2014). It is one of the most essential systems in a company because it helps them to combine and use different business units while also with excellence between various productive fields, like sales, marketing, finance, and human resource management, through the employment of automated programs that control operations using integrated systems (Matende & Patrick, 2013).

ERP systems are the way of assisting and facilitating an organization's order fulfillment process, including product delivery. ERP systems track resources like material, equipment, and staff, which are commonly utilized in financial management, manufacturing, and distribution, by registering adjustments in storage devices.

Currently, ERP systems are the foremost rapidly growing systems in organizations. ERP systems have emerged as a response to the large transformation in businesses caused by clients' demand of fast services, wider choices and lower prices. Other factors like globalization, the necessity for process standardization and also the highly changeable expectations of consumers, have also participated in business transformation (Botta-Genoulaz & Millet 2006).

Human resource management is that the application of management principles to management of people in a corporation. It is a significant part of managing any organization, particularly business organizations. HRM comprises various management functions like recruitment, training, development, wage/ salary administration, industrial disputes, social insurance and labor welfare, promotions. In recent times, these practices are increasingly getting used as a tool for meeting the objectives of the organization, rather than being restricted to the conventional approach (Vaideeswarn & Arockiam, 2019).

In order to realize organizational goals with well professional staff and to assist within the organization's support the implementation of ERP in HRM is critical.

Thus, ERP consists of modules that pander to specific areas of the company and human resources are one of these. The target of an ERP for HR is, therefore, to simplify and digitalize administrative tasks and speed up internal processes to save lots of employee's time. Hence, managing human resource effectively is incredibly essential for the success of companies to implement a successful Enterprise Resource Planning project.

1.2 Background of the Organization

The Commercial bank of Ethiopia (CBE) encompasses a long history that dates back to 1942, when it absolutely was established. CBE was incorporated as a stock company in 1963. In 1974, it absolutely was merged with the privately owned metropolis Bank. Since then, it's been playing significance roles within the event of the country both economically and technologically. The bank was the primary within the country to introduce modern banking. Its 1280 branches stretched across the country. With assets of 565.5 billion Birr as of June 30, 2018, it's Africa's largest bank. It plays a catalytic role within the economic progress & development of the country. It's also Ethiopia's first bank to produce ATM services to local customers (CBE, 2021).

Many Ethiopian businesses have successfully introduced ERP systems. After implementation, ERP Software provides tremendous benefits like quality improvements, optimum utilization of scarce resources and deduction within the organization. An ERP Suite is significant for integrating and automating an organization's business processes. ERP in Ethiopia has aided in exposing Ethiopian businesses to foreign best practices and processes and should function a catalyst for them to spice up their competitiveness and efficiency within the identical way. Ethiopian businesses are increasingly recognizing and appreciating the large benefits that a flexible and efficient ERP system can provide to their organization. ERP implementation in Ethiopia is critical for smoothly automating, reviewing, and controlling a company across all departments and locations in real time. Production quality may additionally be far better than labor intensive processes used traditionally earlier (Ebizframe, 2021).

Hence, rather similar to the alternative large organizations of Ethiopia; CBE has implemented ERP since August 2017 partially within the intended support processes although the plan of the project is to deliver to the supporting divisions starting from August 2016. When the Bank adapts the ERP project it had planned to form applicable software solution which is immediately conveyable with a rare customization and contain all the protection features that are needed to safeguard the confidentiality, availability, integrity of data and non-denial of the transactions distributed through ERP. Specifically, the bank has implemented the HRM component of ERP in an exceedingly better way than the alternative components of ERP (Betelhem, 2019).

Thus, the research comes up with whether the implementation of ERP is successful or not on human resource management effectiveness. Moreover, ERP is a spanking new system for Ethiopia and also for CBE, so it's vital to figure out the effectiveness of the system within the bank.

1.3 Statement of the Problem

Now a days many challenges are facing organizations, such as international trade barriers, economic liberalization, globalization, and privatization have made a heavy burden on organizations specifically in developing countries like Ethiopia to survive in such environment. These challenges have increased the pressure on these organizations to come up with effective and competitive capabilities to survive and succeed. Enterprise resource planning (ERP) is mostly considered as one of the best solutions for organizations to survive (Rao, 2000). ERP systems can successfully integrate the processes of each department, decrease costs, improve effectiveness, increase clients' level of satisfaction, and immediately share information with the whole enterprise (Davenport et al, 1998).

Major business drivers behind ERP implementations are the numerous technical, financial, operational, and strategic benefits these systems perform. the key benefits of ERP systems are quicker information response time, increased interaction across the enterprise, improved order management cycle, reduced financial and operating costs, improved interaction with customers and suppliers, improved on-time delivery and cash-management, then on (Helena, 2005).

Enterprise resource planning (ERP) system has been one of the most popular business management systems, providing benefits of real-time capabilities and seamless communication for business in large organizations. However, not all ERP implementations have been successful. Since ERP implementation affects the whole organizations such as process, people, and culture, there are a number of challenges that companies may encounter in implementing ERP systems (Ibrahim, 2010). ERP's implementation effectiveness depends on success of implementation process and organizational set up. The implementation process is explained by ERP implementation factors (Syeda et.al, 2013).

Many researchers have agreed that managing human resources in an appropriate manner is a key for a success in ERP implementation. However, implementing an ERP results an inevitable change process, which brings in many behavioral and managerial challenges such as user resistance, management resistance, lack of adequate training, employees lack of motivation, high turnover rate and so on. These people challenges are considered to be more difficult to manage than the technical difficulties encountered. Similarly, many academics suggest that the reason why large number of software implementation projects fail is because management is paying too little attention to human resource management.

Most of the research's conducted in Ethiopia focus their research on implementation of ERP in general, only very few researches are conducted on the impact of ERP on Human Resource Management; among this Chernet (2017) and Shalaye (2020) conducted their research with special consideration to HRM on Ethiotlecom.

Thus, in addition to human resource challenges lack of research on this area is one of the identified gap. So, this research has been conducted to examine the effect of ERP implementation in the Human resource management effectiveness of Commercial bank of Ethiopia.

1.4 Basic Research Questions

1. What are the factors that affect ERP implementation?
2. What is the relationship of ERP implementation factors with organizational productivity?
3. What is the relationship of ERP implementation factors with HRM effectiveness?

1.5 Objective of the study

1.5.1 General Objective

The general objective of this study is to examine the effect of ERP implementation on Human resource management effectiveness in reference to Commercial Bank of Ethiopia.

1.5.2 Specific Objectives

1. To identify factors that affect ERP implementation.
2. To examine the relationship of ERP implementation factors with organizational productivity.
3. To evaluate the relationship of ERP implementation factors with HRM effectiveness.

1.6 Significance of the Study

The research paper provides important information to managers of Commercial Bank of Ethiopia at different levels and users about the effect of ERP within the effectiveness of HRM and provides possible suggestions for the encountered problems. In general, the finding and results of this research are going to be communicated to banking company of Ethiopia as a crucial input within the area so they'll able to evaluate their system utilization practices in associated with ERP implementation and identify focus area and take necessary action specific to Human Resource Management. It will also function a benchmark for organizations that failed to fully implement ERP.

It will also help the researcher to urge knowledge and practical experience about ERP, and also for the partial fulfillment of Master of Science degree in management. Furthermore, the researcher believes this study will function a reference for future research in this area.

1.7 Scope of the Study

The scope of this study is restricted to the precise topical and spatial areas. Having the target of examining HRM effectiveness in context of ERP, the spatial scope of the study was delimited to the boundary of Commercial Bank of Ethiopia head office branches of Fininfine, Debrework, Chaka buna, Saris and Zagwe located at Addis Ababa. The reason for selecting the head office branches is because HR department is available only in the head offices.

This study uses explanatory research design; however, there's correlational study by describing, analyzing and reporting data so on appropriately answer research questions. The unit of observation of the study were the workers in divisions of human resources, in CBE head office.

1.8 Organization of the Study

The study is organized in five chapters. The first chapter starts with a general introduction about ERP systems and their relationship with Human Resource Management. It includes background of the organization, statement of the problem, research objectives, significance of the study and its scope and limitations.

Chapter two includes detailed literature review about ERP, Theoretical literature review, Enterprise Resource Planning, Human resource management, concept of HRM effectiveness, the origin of ERP, Factors Affecting ERP implementation, Functions of Human Resource Management, ERP Implementation process, human resource management effectiveness improvement, theories for the study and conceptual framework and review of empirical studies. The third chapter discusses about the methodology of the research, data collection, and analysis techniques. Chapter four focuses about analyzing the data, discussion, and results. The final, chapter; chapter five gives conclusion and recommendation for future works.

CHAPTER TWO:

REVIEW OF RELATED LITERATURE

2.1 Introduction

In this chapter, literatures associated with ERP are reviewed. It is organized into different subtopics: Theoretical and conceptual literature review about Human Resource Management, Enterprise Resource Planning, HRM effectiveness, ERP implementation process and organizational productivity. Finally empirical literature on effect of ERP on HRM effectiveness is reviewed.

2.2 Theoretical Review

2.2.1 Enterprise Resource Planning System

The definition of the ERP system differs per the context, especially if different scholar's views are taken into consideration. The major definitions available in most literatures are discussed as follows.

Davenport (1998) defines the ERP system as a "packaged software a company should buy as a finished product ("of-the-shelf") so as to integrate and share its information within departments among them". This definition focuses the mixing, founded by the ERP system, between different organizational units, basically functional areas within the organization like finance, marketing, procurement, supplies, sales and distribution, human resource planning, etc.

Al-Mashari et.al (2003) define in a very bit different way; the ERP system as information communication technologies and infrastructure that permits the flow of data within the organization and communication with suppliers and other members of the availability chain.

Jacobs and Bendoly (2003) defined ERP as an idea and as a system. Its conceptual definition involves the mixing of business processes within a corporation, with improved order management and control, accurate information on inventory, improved workflow, and provide chain management, and better standardization of business and best practices. And ERP as a system is about technological infrastructure designed to supply the desired functional capability required to show the ERP concept into a reality. ERP systems shouldn't be a mere technological

artifact; it's a core platform designed to support and lever the capabilities of the tools and processes utilized by a corporation. ERP system is that the technological manifestation of the ERP concept, its benefits, capabilities, goals, and strategic value.

Akkermans et al. (2003) also state that ERP are often defined from different perspectives like functional, technical, or from business perspective that has strategic value encompassing the complete organizations. Tarantilis et al. (2008) define ERP as a system that integrates traditional accounting, manufacturing, sales, management, and other management products to supply an "all-in-one" solution that deals with all business management aspects of organizations.

2.2.2 The Origin of ERP

A common perspective on Enterprise Resource designing is one that concentrates on the historical development of business integration ideas. It is assumed that the name ERP was derived from the terms material needs designing (MRP) and producing resource designing (MRPII) (Chung and Synder, 1999). MRP was developed to calculate a lot of with efficiency the materials required. It evolved into MRPII that encompassed new practicality like sales designing, capability management and planning. Though' MRPII was at the start seen because the next logical step in economical producing designing, firms quickly realized that profit and client satisfaction area unit objectives that apply to the whole enterprise extending on the far side producing, and encompassing finance, sales and distribution, and human resources.

Computer integrated producing (CIM) is considered ensuing step, embedding a minimum of the technical functions of the merchandise development and production method in a very comprehensive integration framework. The conception of a very integrated enterprise answer is currently referred to as ERP (Helmut, et al. 2000).

ERP systems initial appeared within the late Eighties and also the starting of the Nineteen Nineties with the ability of enterprise-wide inter-functional coordination and integration. supported the technological foundations of MRP and MRP II, ERP systems integrate business processes together with producing, distribution, accounting, financial, human resource management, project management, inventory management, service and maintenance, and transportation, providing accessibility, visibility, and consistency across the enterprise (O'Leary,

2000). The next step was taken within the 1990's once MRP II scope enlarged to contemplate all the resource designing for the whole organization, together with human resources, giving rise to the Enterprise Resource designing Systems (Muscatello, Small, & Chen, 2003).

2.2.3 ERP Implementation Process

ERP implementation process sometimes involve choosing the ERP seller, establishing business method reengineering, implementation, and analysis of the adopted system (Wei, 2008).

ERP implementation usually involve internal IT & business personnel from the adopting firm yet as external consultants from implementation partners so as to achieve success. It's conjointly value mentioning that a decent implementation partner is taken into account one among the foremost necessary factors for the success of ERP and is another addition to the quality of ERP implementation process (Dai, 2008).

ERP needs a giant portion of your time, personnel, and capital (Laukkanen et al., 2007). Most of this value isn't related to the ERP code package itself however with its implementation, together with customizations, configurations, and consultation services to implement it (Hitt et al., 2002).

Gupta et al. (2004) mentioned that ERP implementation process need longer time and capital than what was planned. It is aforementioned that ERP implementation process involve business method reengineering (BPR), will embody customizations, and need smart budgeting and time management so as to guide to victorious business performance gains (Velcu, 2007).

Ehie and Madsen (2005) recommended a five-stage ERP execution prepare utilizing different surveys of the past literatures: project preparation, business blueprint, realization, final preparation, "Go-Live" and support. Project preparation refers to a comprehensive planning phase that forms a project team with leadership roles, sets budget targets, and defines the project objectives and plan. In the business blueprint phase, the current business process is analyzed in detail in order to select an appropriate ERP system. A project team then is trained on functionality and configuration of the selected ERP system. An understanding of the selected ERP system allows a project team to gain insight to reengineering its business processes.

In the realization phase, a project team concentrates on implementing an ERP system including modification, development of interfaces, and data conversion. At the same time, each process design is tested on a conference room pilot. In the final preparation phase, the entire process is fully integrated and tested throughout the organization with full data and various scenarios. End users are trained in this phase as well. Finally, in the "go-live" and support phase, the ERP system is constantly stabilized and may have extensions for competitive advantage.

2.2.4 Factors Affecting ERP Implementation

Many studies have been conducted to identify ERP implementation factors. The following are critical success factors for the implementation of ERP as summarized by different scholars.

2.2.4.1 Top management support in ERP environment and HRM effectiveness

To implement ERP system successfully, management should monitor the implementation progress and deliver clear direction of the project. They must be willing to allow for a mindset change by accepting that a lot of learning has to be done at all levels, together with themselves (Bhatti, 2005).

Ostroff et al., (2013) argued that top management and senior managers play an important role in organizational climate and culture changes. According to, Sheikh et al. (2017) top management factor is related to the degree by which senior management show commitment to their task for the growth and improvement of the company.

In HRM context top management support includes the approaches that were adopted by senior managers and supervisors for encouraging their subordinates to accept and use the new technology and influence employees' behavior. A fundamental feature of successful leadership is the ability to influence the employees behavior, and to motivate them to participate effectively in innovations, influence their attitude towards newly implemented technology (Nodeson et.al, 2012).

Thus, top management set up and communicates the strategies that fit the innovation and adaptation of the new system, as well as pass the message to influence the employees' attitude and behavior. Leadership style and procedures affect the strategic options and the decisions

making process in the organization, and sequentially, these actions influence the subordinates' attitude and behavior. In general, top managers should be an example to their subordinates and direct them towards innovation and changes.

2.2.4.2 User training in ERP environment and HRM Effectiveness

The aim of the training is to provide basic concepts and features of ERP system to the users and therefore the way its use may benefit the organization through automation of business processes. (Al-Mashari, 2006). ERP implementation may fail due of lack of proper user training (Bhatti, 2005).

Human resource management climate is extremely important for the correct implementation of the ERP systems. Maditinos (2012) argued that knowledge transfer is very effective with measuring the ERP implementation phases. Knowledge is taken from the outsiders of the organizations but the thing to focus is that employees should be communicated in proper manners. Ghosh (2012) stated that HRM practices may be tormented by because of wrong rules and regulations, delayed procedures, ineffective deciding, high cost of trainings, wrong perceptions about employees attitude and inappropriate working environment all lead towards failure of the system. Employees should bear in mind of what they'e doing within their task significances.

Nicolaou & Bhattacharya (2005) argued staffs are not willingly participate within the training sessions and not learn updated knowledge if they do not get the right guidance. However, if they're proper guided then the failure results are often minimized. Every management should have the right knowledge about the character and timings of the implementation of the system and also the necessary trainings for better impact. It should answer some typical questions associated with the training sessions that what type of training and trainers are needed and what style of employees should be trained additionally as what sort of enhancement and abandonment for smooth processing is critical.

Compeau & Higgins (1995) also argued that employees should be trained because subsequently they'll better utilize the technology and resources of the organizations. According to Somers & Nelson (2001) lack of coaching has been one in every of the important reasons for failure of ERP

systems .Training also provides managers with a mechanism to distribute useful and pertinent information about the ERP system and the way it fits in with the present and proposed system (Amoako-gyampah & Salam, 2004).

Hence, from the above literatures it's clear that for organizations to achieve appropriate training is extremely important.

2.2.4.3 Effective Communication in ERP environment and HRM effectiveness.

Past studies on ERP adoption have elaborated most of the ERP system adoption showed that aspects like communication efficiency are internal factors affecting the adoption of the ERP system (Vayyavur, 2015).

Lijie & Lyoriobhe (2019) argued that communication could be a crucial tool to HRM. HRM department needs to develop and sustain a smooth functioning work team. This can be because all the functions of HR are geared towards managing employees for the goal of realizing the success of the organization. All the responsibilities of HR cannot be achieved without communication with the workers e.g. If a change is occurred within the organization, to effect the modification, it must be communicated to the workers who will successively be those implement the change. Without effective communication of whatever change there's, the staff won't be able to effect the change and thus, the goal of the HR cannot be achieved. Hence, to implement a successful ERP system in organizations a good communication must be available.

2.2.4.4 Change management in ERP environment and HRM effectiveness

Change management is critical for successful ERP system implementation. It might also be major challenge for successful ERP implementation. Vidyaranya & Cydnee (2005) argued that organizations have cultural diversity as each department has different business needs. They found that with a new system coming into place reengineering needs to be done both for people involved and for business processes. Dealing with organizational diversity is part of change management which affects successful implementation of an ERP system. This is because cultural diversity influences how problem free business process reengineering will take place in the organization during ERP implementation; if the departments are too diverse, then business process reengineering may not be as successful.

Change management practices include having the right vision and strategy in place; the skill, style and involvement of top leadership; effective communication; and staff empowerment. Muma (2016) established an improvement in success rates of ERP implementation in the recent past. These improvements have largely been attributed to adoption of change management practice. Because of the adoption of change management practices in ERP implementation, organizations can achieve returns on the heavy financial investment in ERP.

2.2.4.5 Vendor support in ERP environment and HRM effectiveness

Having qualified vendor support may could also be a fabric advantage in implementing the ERP system stage, where the initialization of the system must be very accurate and professional in a very way that launches it appropriately. The essential tasks and operations should be examined to detect bugs and errors to reduce problematic issues within the following phase. However, the testing and examination of the system won't prevent technical and operational issues from arising here, when the organization would want consultation and guidelines to resolve these issues (Vilpola, 2008).

Support from the vendor involves the response time to enquiries from the project team and manager. Faster responses confirm the project implementation isn't stalled and so the project schedule remains to the proper track. Vendor support also involves selection of vendors who are knowledgeable in information technology and within the organization's current system and business processes. Software vendors should also possess good interpersonal skills since they'll interact with the project team constantly (Zhang et al., 2002)

2.2.4.6 User Acceptance in ERP environment and HRM effectiveness

The users of an ERP system are usually those required to manage their daily working practices to the new system's requirements. Apparently, becoming aware of a replacement ERP system isn't a straightforward task and involves hard working and patience from users. User acceptance of technology is additionally a determiner for successful ERP system implementation (Wang and Chen, 2006).

Moreover, it's reported that end users are generally more skeptical about the newly implemented complex system, which is reflected within the rejection or under-utilization (Amoako, 2004).

Researchers have identified those user-related factors as critical risk factors for the ERP implementation projects, including the complex nature of the projects (Migdadi, 2009). That is, whether or not a system is installed on time and within budget, it's undesirable if users perceive the system useless for his or her work processes or must spend an extended time in working out how to use it.

Additionally, the particular undeniable fact that a majority of users don't seem to be IT experts could make them remain at the very fundamental level of applications within the work processes (Chung et.al, 2008). Lack of understanding of their technological capacity and tiny exposure to the foremost effective practices provided by the ERP systems also make them difficult to want an edge in such a system (Tatari et al, 2007). It is recommended that a high level of interdepartmental collaboration is required to reengineer the flow of knowledge and communication.

2.2.5 Human Resource Management

Human Resource Management is dominant approach towards people management and plenty of practitioners, academics, sociologist and psychologist gave and explained many theories about the Human and their behavior at work. In ancient societies mostly work was done through division of labor, but it had biasness thanks to caste and power etc. but modern HRM aims to figure with coordinated effort and identify and develop the simplest people for specific job no matter caste, power, gender or biasness. When employees underutilize the new data system it lowers the business's efforts so as to achieve benefits from such implementations. Employees are unwilling and show resistance towards change and it's the commonly acceptable reason for system failure (Venkatesh et.al, 2008).

Storey (1995) defines HRM as "a distinctive approach to employment management which seeks to realize competitive advantage through the strategic deployment of a highly committed and capable workforce, using an integrated array of cultural, structural and personnel techniques"; On the opposite hand, Byars (2004) see HRM as "activities designed to produce for and coordinate the human resources of a company." Furthermore, Boxall & Purcell (2000) argue that "HRM includes anything, and everything related to the management of employment relationships within the firm." The words anything and everything within the definition explains

the broader range of issues comprising policies such employment agreement and ways within which employees is also involved and participate in areas ultimately covered by the use contract thus ensuring suitable work life.

Further, it goes beyond employment relations or industrial relations, which personnel management wouldn't be ready to render in organizations. Adeniji et.al (2013) also asserted that the concept of human resource management goes beyond employment relations or industrial relations. It involves employees adapting willingly to alter within the organizational structure with none strife or prejudice. The concept emphasizes that prime level performance attainment of organization depends on the standard of members of staff and management of such organization matching of human resource strategies to the requirements of the business strategy.

Thus, managing the human resource has become one in all the critical success factors in organizations. Both the existence of proper personnel and also the ways people are managed are the idea for achieving the competitive advantage.

Armstrong (2009) described Human Resource Management (HRM) as a strategic and logical approach to the management of an organization's most valued assets, which are the workers. the staff collectively contribute to the achievement of organizational objectives. Similarly, Johanson (2009) noted that HRM may be a function within a corporation designed to maximize employee performance in commission of the companies' strategic objectives.

"HRM is governed by HRM practices, like employee recruitment, training, and development (T&D), performance appraisal, and compensation and benefits" (Paauwe & Boon, 2009). Similarly, HRM practices is also viewed as a group of practices employed by the organization to manage human resources through facilitating the event of competencies that are firm-specific, produce complex relation and generate organization knowledge to sustain competitive advantage (Minbaeva, 2005).

Though there could also be different definitions on HRM and its practices, all of them relate to specific practices, and organizational policies that are designed to draw in, develop, motivate, and retain employees who make sure the effective functioning and survival of the corporate.

2.2.6 Functions of Human Resource Management

The major functions of HRM are discussed as follows.

Recruitment and Selection: Recruitment is that the process of placing the proper person, within the right place, at the correct time. It's essential to organizational performance. Recruitment may be a critical activity, not only for the HR team but also for line managers who are increasingly involved within the selection process. All those involved in recruitment activities must have the acceptable knowledge and skills (CIPD, 2014). This is often one amongst the foremost basic HR functions. There are many important tasks in these functions, like developing employment description, advertising the work postings, screening applicants, conducting interviews, making offers, and negotiating salaries and benefits. Organizations that value their people invest high amount of resources for recruiting and staffing services because; skilled employees cannot only raise the companies' profile but also help it achieve profitability and keep it running effectively and productively (Ahammad, 2017).

Training and development. it is one in every of the foremost essential function and lack of coaching increases frustration levels among employees. Measurement and monitoring is another essential aspect of coaching so as to foster adoption of employees' new skills. Training and development could be a function of HRM concerned with organizational activity geared toward bettering the performance of people and groups in organizational settings. This has been known by several names, including "human resource development (HR development)" and "L&D" (Ahammad, 2017).

Benefits Administration: Benefits administration is a crucial function for human resource management, because; it's a part of retention management and might be accustomed motivate employees (Dessler, 2013). As Ahammad, 2017 stated the benefits which will that can attract and retain new skilled workers are; flexible working hours or workdays, extended vacation time, paternity leave or childcare, medical insurance, corporate gym membership discounts, continuing skills development, award & recognition programs, health care insurance, life assurance, social insurance, retirement and voluntary accidental death and dismemberment insurance.

2.2.7 Human Resource Management Effectiveness

An effective human resource management practices are often the foremost factor for the success of a firm (Stavrou, 2005). Human resource management (HRM) is crucial operation management practice that deals with the most vital resource of organizations. Managers accomplish organizational goals by the efforts of employees who needs effective HRM; hence HRM should be aligned with the overall strategy of the company to make sure effective use of manpower and show their talent and provide better performance. The HR department should manage its functions and practices effectively to enhance its performance and also the overall performance of the organization. Hence, HR has to reduce the operational cost of its activities and provide excellent service to internal and external customers (Madanat & Khasawneh, 2018).

Authors who accommodate HRM effectiveness state that HRM managers are increasingly playing an integral role in strategy implementation and are to be thought to be facilitators in formulating strategy that contributes to firm performance (Becker & Huselid, 2006).

The HR department should manage its functions and practices effectively to spice up its performance and also the final word performance of the organization (Madanat & Khasawneh, 2018). Therefore, HR possesses to attenuate the operational cost of its activities and supply excellent service to internal and external customers. Bai (2013) emphasized the importance of constructing sure that each one HR activities are focused on the objectives of the organization to possess the effective HRM system. Activities that don't seem to be meeting this goal should be improved. Agarwala (2003) agreed that management of human resources must move from traditional programs to a recent system of labor that matches the precise needs and objectives of an organization.

Jain & Gupta (2012) underlined the symptoms for effective HRM outcomes which include: employee satisfaction, employee motivation, employee trust, and employee commitment and employee loyalty. Hence, the corporate should maintain slightly environment that supports the satisfaction, commitment and motivation of employees. Noe et al. (2010) discovered that managers at organizational level should be ready to define effective HRM practices to assist the corporate enhance customer satisfaction and gain competitive advantages.

2.2.8 Organizational Productivity

According to Leadership Insight (2013), organizations have to protect the investment in their workforce by retaining employees and their intellectual capital to make sure business continuity and skill to satisfy key business objectives. HR connect (2007), observed that training and development may be done through coaching. The most important training instrument for succeeding excellent result is motivating employee performance.

In coaching, motivation is that the creation of conditions that encourage an employee to attain a high level of performance. How well employees perform is what important, which has working conditions, providing support to employees that helps them get their work done well and serve their internal and external customers effectively. A manager who functions as a tutor must realize that providing positive reinforcement permanently performance increases the likelihood of continued good performance.

Dobre (2013) asserts that human resources have the potential to form competitive advantage organizations. Employee performance depends on an oversized number of things, like motivation, appraisals, job satisfaction, training and development and then on, to influence to a considerable degree the organizational performance.

2.3. Review of Empirical Studies

The study made by Vikas and Dr. Vani, (2014) attempted to look at the extent of impact of this contemporary computerized ERP system on HRM in a company. It articulates that the normal HRM function was to entail hiring and firing of employees, payment of salaries and administering the benefit plans. Today HRM function is shifting from protector and screener to strategic partner and alter agent. The authors explained that HRM as a strategic business partner function has major challenges, especially in companies with multiple business units where HRM processes might not have a unified, simple method for tracking employees' time and communicating with them about benefits and services, managing recruitments centrally and coordinating training programs organization wide, lack of centrally driven performance management system and talent management.

The study examined that ERP can fix of these issues by providing a centrally managed system with defined processes and procedures for various HRM functions. ERP facilitates the Management of organizational structure specific to a period of time with the flexibleness to investigate and alter. It enables real time changes within the organizational structure through its integration with various employee related aspects like transfer and promotions. It enables view of entire organization in general and may project an image of entire organizational structure in line with the long run planning. It also helps in generating various reports like number of employees reporting to a selected manager, number of employees during a department etc.

Thus, it facilitates faster higher cognitive process and organizational restructuring and manpower planning on a true time basis. The result has revealed that ERP enhances the manual working of personnel administration, time management and leave administration, compensation management and salary administration, recruiting, training and development, employee portals and performance management of HRM functions. Overall findings of the research have suggested that ERP system helps in better driving the Human resource management processes thereby contributing to the success of the organization.

Shahzadi et.al. (2014) made research on Impact Study of Enterprise Resource Planning (ERP) in HRM Practices and their result shows that among functions of HRM recruitment and selection isn't positively influence the organizational productivity for those organizations where ERP system is implemented and employed by the staff for managing HRM activities. While on the opposite hand, compensation and benefits positively influence the organizational productivity in terms of employee's satisfaction and in terms of non-financial benefits. Moreover, training and development is positively associated with the organizational productivity.

Kushwaha. et.al. (2018) also assessed Impact of enterprise resource planning on human resource. The results of the study revealed that HRIS has improved the info input and data maintenance process, HRIS has decreased the time spent on communicating information within the organization, HRIS has decreased the time spent on correcting errors, HRIS has decreased the time spent on feeding the information, HRIS has improved the accuracy of coming up with, HRIS has decreased cost of employing, HRIS has created environment of open communication between employees and management, HRIS compensation management system helps in smooth function of payroll management, HRIS helps organization to create simpler promotion decisions,

HRIS helps organization make better decisions in selecting best people, HRIS helps organization decided when training & skill development are necessary, HRIS has improved the strategic deciding of top administrators. The factor which doesn't shows the many effect is HRIS has decreased training and recruiting expenses.

Vaideeswarann & Arockiam (2019), examined Impacts of ERP on HRM and their findings showed that recruitment and selection wasn't showing relationship with ERP and organizational productivity. ERP has no relation with compensation and benefits but this mediating variable shows the relation with organizational productivity. But ERP implementation shows positive relation with training and development and this mediating variable shows positive relation with organizational productivity.

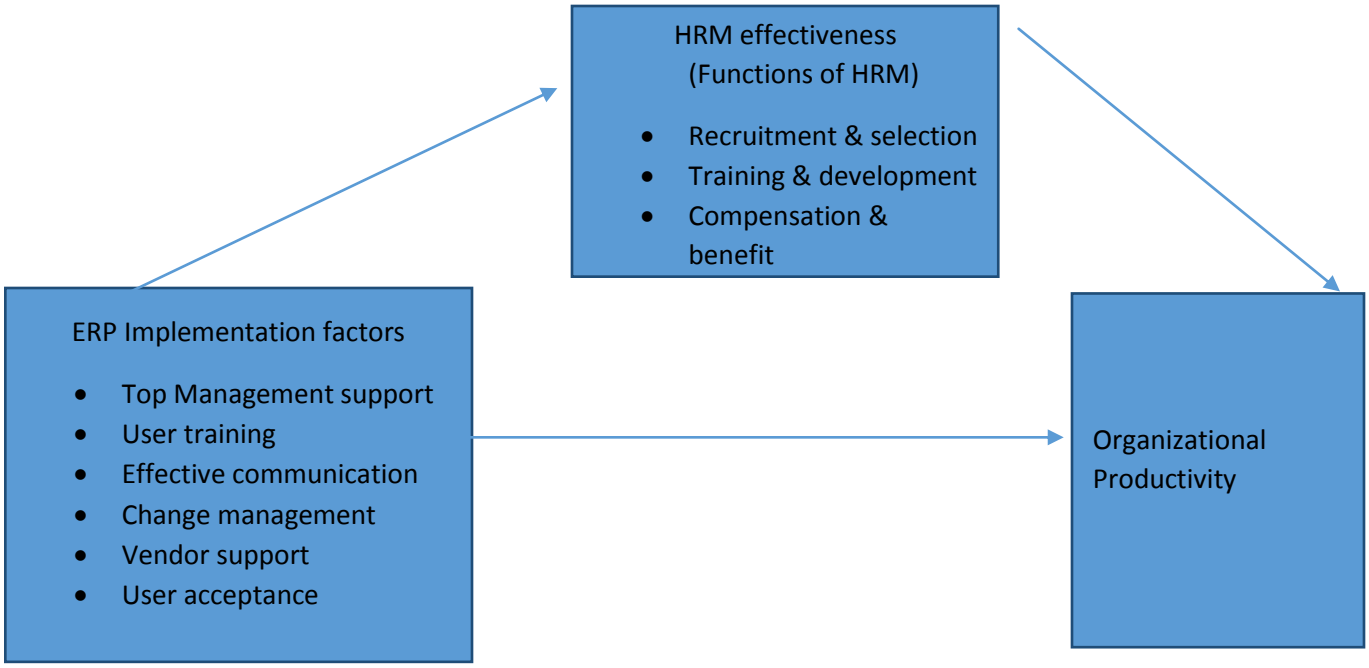
Although many studies have been conducted on Ethiopia concerning ERP in general, very few studies are conducted regarding Human Resource Management. Hence, this study tries to fill the gap by adding knowledge to the previous studies.

2.4. Conceptual Framework

In this study, the research model is adopted from the conceptual model of Shahzadi et.al (2014). The model comprises different variables; independent, dependent and mediating variables. ERP implementation factors are independent variables, dependent variable is organizational productivity and mediating variables are recruitment and selection, training and development and compensation and benefits.

Hence, by using the above-mentioned concept this study estimated HRM effectiveness which are explained by HRM functions (recruitment and selection, training and development and compensation and benefits) by paying attention to explaining the kind and effects of the relationship between independent- ERP implementation factors (top management support, user training, effective communication, change management, vendor support and user acceptance) and dependent variables (organizational productivity). This study extended the independent variable ERP implementation to ERP implementation factors.

Figure 2.1 Conceptual framework



Source: adapted from Shahzadi et.al (2014)

CHAPTER THREE:

RESEARCH DESIGN AND METHODOLOGY

3.1 Introduction

This chapter gives detailed and sufficient information in order to create an estimate of the reliability and validity of the methods used. It also explains and justify the alternatives of methodology approaches adapted to answer the research questions raised.

3.2 Research Design

A research design stands for advance planning of the methods to be adopted for collecting the relevant data and the techniques to be used in their analysis, keeping in view the objective of the research and the availability of staff, time and money (Kothari, 2004).

In this research explanatory research design is used to analyze the relationship between variables. It looks for causes and reasons and provides evidence to support an explanation. It is conducted to discover and report relationships among different aspects of the phenomenon under study.

Moreover, there is also correlational study by describing, analyzing, and reporting data so as to appropriately answer research questions. This study conducted to demonstrate the mediating role of HRM effectiveness (recruitment & selection, training & development, and compensation & benefits) in between ERP implementation factors (top management support, user training, effective communication, change management, vendor support and user acceptance) and organizational productivity.

3.3 Research Approach

In this research quantitative research approach is used. As Creswell (2012), pointed the quantitative approach helps to test relationships between variables in which the researcher primarily uses post positive claims for developing knowledge, this is the cause-and-effect relationship between known variables of interest, or it employs strategies of investigation.

3.4. Population and Sampling

3.4.1 Population

The target population for this study is the human resource department in the head office of commercial bank of Ethiopia. The head office branches are Fininfine, Debrework, Chaka buna, Saris, Zagwe which is located in Addis Ababa. The population sizes of study or HR department employees in head office from the five branches are **509**.

3.4.2 Sampling Size

In this research, simple random sampling method is used where each member of the population has an exactly equal chance of being selected. The reason for selecting this sampling technique is because the population of the study is homogeneous only concerned with one department. The sample size determination using Yamane Taro (1967) provides a simplified formula to calculate sample sizes.

Where n is that the sample size, N is that the population size, and e is that the extent of precision

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

Where N= population size, n= sample and e= error of sampling

$$n = \frac{509}{1+509\,(0.05)^2}$$

n= 224

Thus, out of **509** employees, questionaries' is distributed for 224 employees.

3.5 Data Sources

In order to attain the target of the study, the researcher used two appropriate data sources. These are the primary and secondary sources. This study focuses much on the first sources of knowledge collected by questionnaires. In this study context the employees in divisions of human resources were major sources of primary information. The study used the secondary data to enrich the first data. This include: - different researches, internet source, and journals pertinent to the study.

3.6 Method of Data Analysis

The data gathered through questionnaire from field survey were analyzed by using Statistical Package for science (SPSS V26) computer software. Both primary and secondary data gathered are presented using tables.

The information collected from questionnaire were carefully checked for completeness and accuracy then cleaned for consistency. The information collected from questionnaire coded with code numbers assigned to every answer of the question to come up with a coding frame which is able to be fed into the pc SPSS software.

3.6.1 Descriptive Statistical Analysis

To process and analyze the collected demographic related data central tendency measurements (frequency and frequency distribution, valid and cumulative percentage mean and standard deviation) is used. Moreover, tabular explanations are used to present the result with the help of SPSS V26.

3.6.2 Inferential Statistical Analysis

To check the importance level of dependent, mediating and independent variables, correlation and multiple regression analysis used. The relevance of these statistical tools and methods of presentation are explained as follows.

a) Correlation

Correlation (r) analysis is accustomed to test relationships between variables for determining the number of correlations between variables. It reflects the strength or direction of the relationship between two or more variables. Hence, for this study Pearson correlation coefficient is used. Pearson correlation coefficient, r, can take a range of values from +1 to – 0. A value of 0 indicates that there is no relationship between the two variables. A value greater than 0 indicate a positive association. A value less than 0 indicate a negative association. In computing the relations, the significance level will be set at 95% confidence interval with alpha value of 0.05. Which implies that there is a 5% chance that the population mean lies outside of the upper and lower confidence interval.

B) Multiple Regression Analysis

In this study multiple regression analysis is used to predict the unknown value of a variable from a known value of a variable. The variable to predict is organizational productivity (dependent variable) and HRM effectiveness (mediating variable). The variables we are using to predict the value of organizational productivity and HRM effectiveness are 6 ERP implementation factors. It is necessary to develop a model by using ERP implementation factors or predictors which have influences on organizational productivity and HRM effectiveness. Three steps mediation analysis model which is adopted from Mackinnon et.al (2007) is used.

1. Predicting organizational productivity from ERP implementation factors

Model 1: $Y = \beta 0 + \beta 1X1 + \beta 2X2 + \beta 3X3 + \beta 4X4 + \beta 5X5 + \beta 6X6 + \varepsilon$

Where Y is the dependent variable, and the independent variables are those which explain the response ranges from X1 to X6.

2. Predicting HRM function from ERP implementation factors

Model 2: $M = \beta 0 + \beta 1X1 + \beta 2X2 + \beta 3X3 + \beta 4X4 + \beta 5X5 + \beta 6X6 + \varepsilon$

Where M is the mediating variable, and the independent variables are those which explain the response ranges from X1 to X6.

3. Predicting Organizational productivity from HRM effectivness and ERP implementation factors

Model 3: $Y = \beta 0 + \beta 1X1 + \beta 2X2 + \beta 3X3 + \beta 4X4 + \beta 5X5 + \beta 6X6 + \beta 7X7 + \beta 8X8 + \beta 9X9 + \varepsilon$

Where Y is the dependent variable, and the independent variables and the mediating variables are those which explain the response ranges from X1 to X9.

3.7 Measurement Instruments

For this study, questionnaire is the most essential data collection tool. As Kothari (2004) stated questionnaire is very useful instrument because of its quick, economical, reach large numbers and easy accessibility in obtaining sufficient information from respondents. Moreover, questionnaires are an effective means of measuring the behavior, attitudes, preferences, opinions and, intentions of relatively large numbers of populations more cheaply and quickly than other methods.

The survey measure employed in this study comprised four major sections: (1) demographic information, (2) HRM effectiveness (3) ERP implementation factors (4), Organizational productivity in terms of employee. And to gather demographic information gender, age, educational level, job position in the company, years of company experience and years of experience in using ERP are considered. Five-point Likert scale was used to rate the independent, mediating and dependent variables, which ranges from Strongly-disagree (1) to Strongly-agree (5) level of agreement. These five-point likert scale are adapted from different literatures of researchers.

The independent variables or implementation factors of ERP questions were adapted from the studies of (Karimi et al., 2007; Francoise et al., 2009; Yousef, 2010) whereas the effectiveness of HRM questions were adopted from (Kushwaha et.al, 2018, Shayle, 2020) research studies.

3.8 Instrument Reliability

Reliability could be a measure of the soundness or consistency of test scores. It is the flexibility for a test or research findings to be repeatable. so as to live the reliability and consistency of the instrument, the Cronbach's Alpha (α) analysis are employed by the assistance of SPSS version 26.

As George & Mallery (2003) stated, the worth of alpha should be greater than 0.7 to just accept the instrument. Hence, reliability of the questions to the variable was measured by using Cronbach's alpha method by the aid of SPSS version 26.

Table 3.1 Reliability test of Variable's by using Cronbach's Alpha

S.No	Variable Name	Cronbach's Alpha	No of Items	Alpha (α) Reliability ranges
1	Top management support	.847	4	Acceptable
2	User Training	.861	4	Acceptable
3	Effective Communication	.840	4	Acceptable
4	Change management	.789	4	Acceptable
5	Vendor Support	.904	4	Acceptable
6	User Acceptance	.920	3	Acceptable
7	Recruitment and Selection	.830	4	Acceptable

8	Training and development	.889	2	Acceptable
9	Compensation and benefits	.724	4	Acceptable
10	Organizational Productivity	.865	7	Acceptable
Overall		**.916**	**40**	Acceptable

Source: SPSS output survey V26 (2022)

3.9 Validity

Validity of research was explained as an extent at which requirements of research method are followed during the method of generating research findings. Oliver (2010) considers validity to be a compulsory requirement for every kind of studies. Hence, the things within the questionnaire are refined to create sure they measure what they shall measure.

3.10 Ethical Consideration

On this study, privacy of the participants, are strictly confidential and only used for tutorial purposes. All information concerning the identity and personality of respondents are confidential. Additionally, all information gathered are used for under the aim of this study. The study is in line with the CBE'S policy in relevancy any property rights of the organization. Concerning references, all the materials and sources are properly acknowledged.

CHAPTER FOUR

DATA ANALYSIS, INTERPRETATION AND DISCUSSION

4.1 INTRODUCTION

This chapter discusses, the data collected using questionaries' and presented based on the objectives of the study. The research tried to examine the effect of ERP implementation factors on HRM effectivness and organizational productivity in Commercial Bank of Ethiopia.

This chapter also focused on elaborating variable HRM effectiveness (recruitment and selection, training and development and compensation & benefit) that mediate the relationship between ERP implementation factors and organizational productivity. Moreover, the data collected were analyzed by using SPSS version 26. Correlation and regression analysis are applied in the quantitative analyses.

A total of 224 questionnaires were distributed and 213 returned and used for analysis. The non-response rate is 11 (5%).

4.2. Demographic composition of Respondents

Demographic information includes the respondent's gender, education level, age, position in the organization, years of experience in CBE and years of experience in using ERP software. Based on this, demographic characteristics are presented as follows.

Gender of the Respondents

As shown in table 4.1 below, out of 213 respondents, 53.5% of them were male and the rest 46.5% were female respondents.

Table 4.1 Gender of the Respondents

Gender					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	114	53.5	53.5	53.5
	Female	99	46.5	46.5	100
	Total	213	100	100	

Source: SPSS output survey V26 (2022).

Educational level of respondents

Table 4.2 reveals that the majority of the respondents (52.1%) are degree holders, 36.2% are second degree holders and the remaining 11.7% are diploma holders. Based on this it can be concluded that the respondents have the ability to understand ERP system.

Table 4.2 Educational level of the Respondents

Educational level				
		Frequency	Percent	Valid Percent
Valid	Diploma	25	11.7	11.7
	Degree	111	52.1	52.1
	Masters	77	36.2	36.2
	Total	213	100.0	100.0

Source: SPSS output survey V26 (2022).

Age of Respondents

As depicted in table 4.3 the majority of the respondents (39.4%) relies on the age of 31 to 40 years. 25.4% relies on the age of 41 to 50 years, 21.6% relies from the age of 21 to 30 years, and few of the respondents (13.6%) relies on the age of 51 to 60. This shows the majority of the respondents relies on middle age.

Table 4.3 Age of Respondents

Age					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	21-30	46	21.6	21.6	21.6
	31-40	84	39.4	39.4	61
	41-50	54	25.4	25.4	86.4
	51-60	29	13.6	13.6	100
	Total	213	100	100	

Source: SPSS output survey V26 (2022).

Job position of Respondents

As it can be seen from the table 4.4 below the majority of the respondents (59.6%) are Professionals and specialists as per the bank's job classification. 26.3% are officers and the remaining 14.1% are supervisors and managers managing staffs under them.

Table 4.4 Job Position of the Respondents

Position in the organization					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Professional	84	39.4	39.4	39.4
	Specialist	43	20.2	20.2	59.6
	Supervisor	20	9.4	9.4	69.0
	Manager	10	4.7	4.7	73.7
	Officer	56	26.3	26.3	100.0
	Total	213	100.0	100.0	

Source: SPSS output survey V26 (2022).

Year of experience in Commercial Bank of Ethiopia

As it can be seen from the table 4.5 below the majority of the respondents (27.7%) served CBE from 6 to 10 years. 25.8% have served from 11 to 15 years, 20.7% served from 16 to 20 years, 17.8% have served below 5 years and the remaining 8.0% served CBE more than 21 years.

Table 4.5 Years of experience in CBE

Year of experience in CBE					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	<5	38	17.8	17.8	17.8
	6-10	59	27.7	27.7	45.5
	11-15	55	25.8	25.8	71.4
	16-20	44	20.7	20.7	92.0
	>21	17	8.0	8.0	100.0
	Total	213	100.0	100.0	

Source: SPSS output survey V26 (2022).

Years of experience in using ERP software

As it can be seen from the below table 4.6 the majority (54.5%) of the respondents have from 2 to 3 years of experience in using ERP. 34.7% of the respondents worked in ERP from to 4 to 5 years the remaining 10.8% worked in ERP for less than 1 year. Based on this it can be understood that most of the respondents have got the opportunity to use and adapt ERP in HRM context.

Table 4.6 Years of experience in using ERP

Years of experience in using ERP software					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	<1	23	10.8	10.8	10.8
	2-3	116	54.5	54.5	65.3
	4-5	74	34.7	34.7	100.0
	Total	213	100.0	100.0	

Source: SPSS output survey V26 (2022).

4.3 Result of Survey Data

In this section, the data gathered using Likert scale is discussed for independent, mediating and dependent variables.

Table 4.7 Summery of Survey result for the independent variables

Top Management Support					
Measurements	**Strongly Disagree**	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**
Top Management Support					
Top management has allocated the necessary resources for ERP implementation	0.9%	10.3%	31.9%	54.0%	2.8%
Top management regularly gets updated with the implementation process progress	1.9%	10.8%	32.4%	53.5%	1.4%
Top management interferes and corrects the implementation process when needed	0.9%	14.6%	36.2%	47.9%	0.5%
Top management has delegated implementation authority for project managers	0.0%	12.7%	28.6%	57.3%	1.4%
User Training					
The bank has supplied all resources required for training	0.9%	13.1%	28.2%	56.3%	1.4%
The training program was given by highly qualified consultants and trainers	0.5%	9.9%	29.6%	58.7%	1.4%
Internal employees have been intensively trained on the system	0.5%	9.9%	37.1%	51.2%	1.4%
The training programs was well designed for end-users	0.5%	14.6%	32.9%	50.7%	1.4%
Effective Communication					
Staffs were aware about the resources the bank has been allocated in ERP system	0.9%	10.3%	38.5%	48.8%	1.4%

Employees were aware about the importance of the system for the bank	0.9%	7.0%	40.8%	50.2%	0.9%
The bank has communicated the ERP systems objectives with the staffs and its impact on their jobs	1.4%	10.8%	37.1%	49.3%	1.4%
Employees have been well trained about the system benefits	0.9%	8.5%	35.2%	54.0%	1.4%
Change Management					
Employees were aware of the change and ready to deal with	0.0%	16.4%	20.2%	63.4%	0.0%
Employees were previewed with ERP utilization before start using it through training	0.0%	18.3%	23.0%	58.7%	0.0%
Employees have been involved in the design of the new system and satisfied with it	0.0%	21.5%%	11.7%	62.4%	4.7%
Employees were educated about the importance of ERP system and motivated to use it	0.9%	20.7%	18.8%	55.9%	3.8%
Vendor support					
Vendor consultants have offered well designed and intensive training programs for end users	1.9%	25.8%	24.4%	44.6%	3.3%
Vendor was ready to solve and troubleshooting any technical or procedural problem during the implementation	5.6%	28.6%	18.3%	39.0%	8.5%
Vendor has a quick response to company needs	1.4%	36.2%	7.0%	51.2%	4.2%
Vendor's support has continued even after implementing the system in terms of maintenance and upgrading the system	3.8%	26.3%	19.7%	46.0%	4.2%
User Acceptance					
The user community was involved throughout the ERP implementation project.	0.0%	26.3%	20.7%	49.8%	3.3%
Users participated in determining systems needs and capabilities	0.9%	29.6%	15.0%	52.1%	2.3%
Users participated in identifying input/output needs	1.4%	26.3%	23.9%	46.5%	1.9%

Source: SPSS output survey V26 (2022).

The above table 4.7 shows the detailed survey result from respondents. The mean value of each independent variables is shown in the below table 4.8

Table 4.8 Mean value of Independent Variables

S.No	Variables	Mean	Std. Deviation	N
1	Change management	3.3650	0.49850	213
2	Top management support	3.3157	0.56980	213
3	Effective communication	3.2923	0.55899	213
4	User training	3.2899	0.58795	213
5	Vendor support	3.1972	0.89737	213
6	User Acceptance	3.1283	0.80630	213

Source: SPSS output survey V26 (2022).

Table 4.8 depicts the comparison of the independent variables, which shows that change management is ranked first followed by top management support. Effective communication, user training, vendor support and user acceptance ranked from 3 to 6 respectively.

Table 4.9 Summery of Survey result for the Mediating variables

Recruitment and Selection					
Measurements	**Strongly Disagree**	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**
ERP has decreased the time spent on recruiting and improved the recruitment process	1.4%	13.6%	39.9%	44.1%	0.9%
ERP has decreased recruiting expenses	2.3%	12.2%	44.1%	40.4%	0.9%
ERP has helped with forecasting need of more staff	1.9%	13.1%	40.4%	44.6%	0.0
ERP has decreased the time spent on processing paperwork	2.8%	24.9%	13.1%	58.2%	0.9%
Training and Development					
ERP has decreased the time spent on training and improved the training process	0.0%	47.4%	24.4%	27.7%	0.5%
ERP has decreased training expenses	1.4%	44.6%	24.4%	29.6%	0.0%
Compensation and Benefits					
ERP compensation management system helps in smooth function of payroll management	0.5%	22.1%	18.8%	58.2%	0.5%
ERP has decreased the time spent on making staff decisions	0.0%	50.7%	27.2%	21.1%	0.9%
ERP has helped in forecasting the staff needs like allotment of house, promotions etc	0.0%	62.4%	11.3%	25.4%	0.9%
ERP has created environment of open communication between employees and management	0.5%	20.2%	19.7%	59.2%	0.5%

Source: SPSS output survey V26 (2022).

Table 4.9 shows the result of the mediating variables HRM effectiveness which is measured by recruitment and selection, training and development and compensation of benefits. As shown in the table the majority of the respondents especially concerning recruitment and selection and compensation and benefits have responded most of the items as agree level of the five-point Likert scale. The majority of the respondents rated as disagree level for the items on training and development.

Table 4.10 Summery of survey result for the Dependent variable

Organizational Productivity					
Measurements	**Strongly Disagree**	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**
ERP has helped in improving decision making process	1.4%	17.8%	33.8%	46.9%	0.0%
ERP helps in coordinating among departments of the Bank	1.9%	14.6%	21.6%	62.0%	0.0%
ERP improves evaluation of annual budget reports	0.9%	10.3%	23.5%	65.3%	0.0%
ERP helps in increasing the Bank's Profit	1.9%	16.0%	8.5%	73.7%	0.0%
ERP helps in improving strategic planning	0.9%	9.9%	39.4%	49.8%	0.0%
ERP helps in controlling the Bank's clients and suppliers properly	0.9%	12.7%	37.6%	48.8%	0.0%
Staff performance is improved after the implementation of ERP	0.5%	10.3%	24.4%	64.8%	0.0%

Source: SPSS output survey V26 (2022).

The above table depicts the survey result of the dependent variable. The response shows that the majority rates on agree level.

4.4 Correlation Analysis

Correlations is about the strength and direction of relationship between variables. Based on this, Table 4.11 shows the correlation matrix between the independent and dependent variables.

Hence, as the below table reveals (table 4.11) user acceptance has a positive and strong relationship with organizational productivity. There also is a positive and moderate relationship between top management support, user training, effective communication, vendor support and change management and organizational productivity.

Table 4.11 Correlation of ERP implementation factors and organizational productivity

	Correlations								
S.No			**TMS**	**UT**	**EC**	**CM**	**VS**	**UA**	**ORGPRO**
1	Top management support	Pearson Correlation	1	.338**	.397**	0.107	.422**	.326**	.443**
		Sig. (2-tailed)		0.000	0.000	0.119	0.000	0.000	0.000
		N	213	213	213	213	213	213	213
2	User Training	Pearson Correlation	.338**	1	.536**	.220**	.174*	.324**	.344**
		Sig. (2-tailed)	0.000		0.000	0.001	0.011	0.000	0.000
		N	213	213	213	213	213	213	213
3	Effective Communication	Pearson Correlation	.397**	.536**	1	.339**	.415**	.508**	.592**
		Sig. (2-tailed)	0.000	0.000		0.000	0.000	0.000	0.000
		N	213	213	213	213	213	213	213
4	Change Management	Pearson Correlation	0.107	.220**	.339**	1	0.112	.453**	.347**
		Sig. (2-tailed)	0.119	0.001	0.000		0.102	0.000	0.000
		N	213	213	213	213	213	213	213
5	Vendor Support	Pearson Correlation	.422**	.174*	.415**	0.112	1	.435**	.590**
		Sig. (2-tailed)	0.000	0.011	0.000	0.102		0.000	0.000
		N	213	213	213	213	213	213	213
6	User Acceptance	Pearson Correlation	.326**	.324**	.508**	.453**	.435**	1	.640**
		Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.000		0.000
		N	213	213	213	213	213	213	213
7	Organizational Productivity	Pearson Correlation	.443**	.344**	.592**	.347**	.590**	.640**	1
		Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.000	0.000	
		N	213	213	213	213	213	213	213
	**. Correlation is significant at the 0.01 level (2-tailed).								
	*. Correlation is significant at the 0.05 level (2-tailed).								

Source: SPSS output survey V26 (2022).

Table 4.12 below depicts that the factors of ERP implementation are positively and significantly related with the HRM effectiveness.

Table 4.12 Correlation between ERP implementation factors and HRM effectiveness

Correlations											
S.N			**TMS**	**UT**	**EC**	**CM**	**VS**	**UA**	**REQ**	**TR**	**COM**
1	**TOS**	Pearson Correlation	1	.338**	.397**	0.107	.422**	.326**	.335**	.360**	.398**
		Sig. (2-tailed)		0.000	0.000	0.119	0.000	0.000	0.000	0.000	0.000
		N	213	213	213	213	213	213	213	213	213
2	**UT**	Pearson Correlation	.338**	1	.536**	.220**	.174*	.324**	.377**	.249**	0.072
		Sig. (2-tailed)	0.000		0.000	0.001	0.011	0.000	0.000	0.000	0.293
		N	213	213	213	213	213	213	213	213	213
3	**EC**	Pearson Correlation	.397**	.536**	1	.339**	.415**	.508**	.448**	.176*	.317**
		Sig. (2-tailed)	0.000	0.000		0.000	0.000	0.000	0.000	0.010	0.000
		N	213	213	213	213	213	213	213	213	213
4	**CM**	Pearson Correlation	0.107	.220**	.339**	1	0.112	.453**	.286**	0.023	.292**
		Sig. (2-tailed)	0.119	0.001	0.000		0.102	0.000	0.000	0.743	0.000
		N	213	213	213	213	213	213	213	213	213
5	**VS**	Pearson Correlation	.422**	.174*	.415**	0.112	1	.435**	.424**	.237**	.620**
		Sig. (2-tailed)	0.000	0.011	0.000	0.102		0.000	0.000	0.000	0.000
		N	213	213	213	213	213	213	213	213	213
6	**UA**	Pearson Correlation	.326**	.324**	.508**	.453**	.435**	1	.365**	.229**	.408**
		Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.000		0.000	0.001	0.000
		N	213	213	213	213	213	213	213	213	213
7	**REQ**	Pearson Correlation	.335**	.377**	.448**	.286**	.424**	.365**	1	.370**	.182**
		Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.000	0.000		0.000	0.008
		N	213	213	213	213	213	213	213	213	213
8	**TR**	Pearson Correlation	.360**	.249**	.176*	0.023	.237**	.229**	.370**	1	.356**
		Sig. (2-tailed)	0.000	0.000	0.010	0.743	0.000	0.001	0.000		0.000
		N	213	213	213	213	213	213	213	213	213

9	**COM**	Pearson Correlation	.398**	0.072	.317**	.292**	.620**	.408**	.182**	.356**	1
		Sig. (2-tailed)	0.000	0.293	0.000	0.000	0.000	0.000	0.008	0.000	
		N	213	213	213	213	213	213	213	213	213
	**. Correlation is significant at the 0.01 level (2-tailed).										
	***.** Correlation is significant at the 0.05 level (2-tailed).										

Source: SPSS output survey V26 (2022).

4.5 Multiple Linear Regression Analysis

In this section by using multiple linear regression analysis, model summary, ANOVA and Beta coefficient were determined, and the regression model was developed. Hence, the relative effect of ERP implementation factors for organizational productivity and HRM effectiveness was identified.

4.5.1 Multiple Linear Regression Analysis for ERP implementation factors and organizational productivity

In this section the multiple liner regression for ERP implementation factors and organizational productivity is analyzed.

Model Summary for ERP implementation factors and organizational productivity

In the model summary below (Table 4.13), the multiple correlation coefficients R, indicates a moderate association between the organizational productivity and the 6 independent variables. R^2= 0.596 indicates that the model accounts 59.6% of the variation in the organizational productivity and independent variables.

Table 4.13 Model Summary for ERP implementation factors and organizational productivity

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.772[a]	0.596	0.584	2.31295
a. Predictors: (Constant), UA, UT, TMS, CM, VS, EC				
b. Dependent Variable: ORGPRO				

Source: SPSS output survey V26 (2022).

ANOVA Model Fit for ERP implementation factors and organizational productivity

Table 4.14 reveals that the value of R and R^2 found from the model summary is statistically significant at (F=50.546), (P<0.001) and it can be concluded that there is a relationship between organizational productivity and the predictors (ERP implementation factors).

Table 4.14 ANOVA Model Fit ERP implementation factors and organizational productivity

ANOVA[a]						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	1622.442	6	270.407	50.546	.000b
	Residual	1102.046	206	5.35		
	Total	2724.488	212			
a. Dependent Variable: ORGPRO						
b. Predictors: (Constant), UA, UT, TOS, CM, VS, EC						

Source: SPSS output survey V26 (2022).

Beta Coefficient for ERP implementation factors and organizational productivity

- **Standardized Beta Coefficient**

As it can be depicted from table 4.15 below, the standardized coefficient of user acceptance is the highest value followed by vendor support. Effective communication, top management support and change management and user training ranks from three to six respectively. The higher the standardized coefficient, the higher is the relative effect of the factors to organizational productivity.

The significance tests of the 6 variables indicate that 4 of the independent variables are significant with p-value (p<0.05) for predicting organizational productivity. The remaining 2 variables have a p-value (p>0.05), which indicates that these factors are not statistically significant to predict organizational productivity.

Table 4.15 Beta Coefficient ERP implementation factors and organizational productivity

Coefficients						
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std.Error	Beta		
1	(Constant)	0.798	1.500		0.532	0.595
	Top management support	0.172	0.082	0.110	2.114	0.036
	User Training	0.018	0.082	0.012	0.223	0.824
	Effective Communication	0.369	0.098	0.230	3.770	0.000
	Change Management	0.139	0.091	0.077	1.517	0.131
	Vendor Support	0.469	0.085	0.299	5.548	0.000
	User Acceptance	0.625	0.114	0.318	5.469	0.000
a. Dependent Variable: Organizational Productivity						

Source: SPSS output survey V26 (2022).

- **Unstandardized Coefficients**

As it is explained in chapter three, the unstandardized coefficients ($\beta 1$ to $\beta 6$) are the coefficients of the estimated regression model. Thus, by including the error term (ε).

$$Y = \beta 0 + \beta 1X1 + \beta 2X2 + \beta 3X3 + \beta 4X4 + \beta 5X5 + \beta 6X6 + \varepsilon$$

$$Y = 0.798 + 0.172X_1 + 0.018\ X_2 + 0.369\ X_3 + 0.139\ X_4 + 0.469\ X_5 + 0.625\ X_6 + 2.31295$$

The intercept ($\beta 0$) explains the point on the vertical axis where the regression line crosses the Y axis. The value $\beta 0$ is 0.798 which means the expected value of organizational productivity is 0.798 when all the 6 independent variables assume zero value.

Among the 6 ERP implementation factors (Top management support, effective communication, vendor support and user acceptance) are found to be statistically significant predictors of the dependent variable which is organizational productivity. The beta coefficients of these factors indicate that an increase in the ERP implementation factors will result in the increase in the organizational productivity. User training and change management are not statistically significant predictors of organizational productivity.

4.5.2 Multiple Linear Regression Analysis for ERP implementation factors and HRM effectivness

The multiple regression of ERP implementation factors and HRM effectiveness is presented as follows;

4.5.2.1 Model Summary for ERP implementation factors and HRM effectivness

The multiple regression of the 6 ERP implementation factors and HRM effectiveness (recruitment and selection, training and development and compensation and benefits) is presented in the following tables.

Table 4.16 Model Summary for ERP implementation factors and HRM effectivness

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1- Recruitment and Selection	.571[a]	0.327	0.307	1.8337
1-Training & Development	.414[a]	0.171	0.147	1.23508
1-Compensation and benefits	.688[a]	0.473	0.458	1.79559

a. Predictors: (Constant), UA, UT, TMS, CM, VS, EC
b. Dependent Variable : Recruitment and selection, training and development, compensation and benefits.

Source: SPSS output survey V26 (2022).

In the model summary of Table 4.16, the multiple correlation coefficients R, indicates a moderate association between recruitment and selection, training and development and the 6 independent variables. Whereas the multiple correlation coefficients R, of compensation and benefits and the 6 independent variables shows a moderate association. Hence R^2= 0.327, 0.171 and 0.473 indicates that the model accounts 32.7%, 17.1% and 47.3% of the variation in the recruitment and selection, training and development and compensation and benefits and independent variables respectively.

ANOVA Model Fit for ERP implementation factors and HRM effectivness

As it can be seen from the below table 4.17 the value of R and R2 found from the model summary is statistically significant at (F=16.650, 7.106 and 30.869), (P<0.001) and it can be concluded that there is a relationship between HRM effectivness (Recruitment and selection, training and development and compensation and benefits) and the predictors (ERP implementation factors).

Table 4.17 ERP implementation factors and HRM effectivness

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	335.928	6	55.988	16.650	.000[b]
	Residual	692.701	206	3.363		
	Total	1028.629	212			
Dependent Variable: REQSEL						
1	Regression	65.041	6	10.840	7.106	.000[b]
	Residual	314.236	206	1.525		
	Total	379.277	212			
Dependent Variable: TRDEV						
1	Regression	597.152	6	99.525	30.869	.000[b]
	Residual	664.172	206	3.224		
	Total	1261.324	212			
Dependent Variable: COMP						
Predictors: (Constant), UA, UT, TOS, CM, VS, EC						

Source: SPSS output survey V26 (2022).

Beta Coefficient for ERP implementation factors and HRM effectivness

- **Standardized Beta Coefficient**

Table 4.18 below reveals the beta coefficient of recruitment and selection, training and development and compensation and benefits.

Recruitment and Selection

The standardized coefficient of vendor support is the highest value followed by user training. The significance tests of the 6 variables indicate that 3 of the independent variables are significant with p-value ($p<0.05$) for predicting organizational productivity. The rest 3 variables have a p-value ($p>0.05$), which indicates that these factors are not statistically significant to predict organizational productivity.

Training and Development

The standardized coefficient of top management support is the highest value followed by user training. The significance tests of the 6 independent variables indicate that 2 of the independent variables are significant with p-value ($p<0.05$) for predicting organizational productivity. The

other 4 variables have a p-value (p>0.05), which indicates that these factors are not statistically significant to predict organizational productivity.

Compensation and benefits

The standardized coefficient of vendor support is the highest value followed by change management. The significance tests of the 6 independent variables indicate that 4 of the independent variables are significant with p-value (p<0.05) for predicting organizational productivity. The other 2 variables have a p-value (p>0.05), which indicates that these factors are not statistically significant to predict organizational productivity.

Table 4.18 Beta Coefficient ERP implementation factors and HRM effectivness

Coefficients[a]						
		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
Model		B	Std. Error	Beta		
1-Dependent Variable: Recruitment and Selection	(Constant)	1.620	1.189		1.362	0.175
	Top management support	0.075	0.065	0.077	1.154	0.250
	User training	0.176	0.065	0.188	2.706	0.007
	Effective communication	0.141	0.078	0.143	1.818	0.070
	Change management	0.164	0.072	0.149	2.266	0.024
	Vendor support	0.264	0.067	0.274	3.941	0.000
	User acceptance	0.024	0.091	0.020	0.262	0.793
1-Dependent Variable: Training and development	(Constant)	2.321	0.801		2.898	0.004
	Top management support	0.159	0.044	0.271	3.650	0.000
	User training	0.096	0.044	0.169	2.202	0.029
	Effective communication	-0.059	0.052	-0.099	-1.132	0.259
	Change management	-0.054	0.049	-0.081	-1.116	0.266
	Vendor support	0.049	0.045	0.084	1.088	0.278
	User acceptance	0.100d	0.061	0.136	1.633	0.104
1- Dependent Variable: Compensation and benefits	(Constant)	0.110	1.165		0.095	0.925
	Top management support	0.198	0.063	0.185	3.124	0.002
	User training	-0.157	0.064	-0.151	-2.465	0.015
	Effective communication	0.001	0.076	0.001	0.014	0.989
	Change management	0.261	0.071	0.213	3.672	0.000
	Vendor support	0.546	0.066	0.511	8.315	0.000
	User acceptance	0.103	0.089	0.077	1.161	0.247
Dependent Variable: Predictors: (Constant), UA, UT, TOS, CM, VS, EC						

Source: SPSS output survey V26 (2022).

- **Unstandardized Coefficients**

As it is explained in chapter three, the unstandardized coefficients ($\beta 1$ to $\beta 6$) are the coefficients of the estimated regression model. Thus, by including the error term (ε).

$$Y = \beta 0 + \beta 1X1 + \beta 2X2 + \beta 3X3 + \beta 4X4 + \beta 5X5 + \beta 6X6 + \varepsilon$$

Y (REQSEL)= $1.620 + 0.075X_1 + 0.176\ X_2 + 0.141\ X_3 + 0.164\ X_4 + 0.264\ X_5 + 0.024\ X_6 + 1.8337$
Y (TRDEV)= $2.321 + 0.159X_1 + 0.096\ X_2 + (0.059X_3) + (0.054\ X_4) + 0.049\ X_5 + 0.100\ X_6 + 1.23508$
Y (COMPB)= $0.110 + 0.198X_1 + (0.157\ X_2) + 0.001X_3 + 0.261\ X_4 + 0.546\ X_5 + 0.103\ X_6 + 1.79559$

The intercept ($\beta 0$) explains the point on the vertical axis where the regression line crosses the Y axis. The value $\beta 0$ is 1.620 , 2.321 and 0.110 which indicates that expected value of recruitment and selection, training and development and compensation and benefits are 1.620 , 2.321 and 0.110 respectively when all the 6 independent variables assume zero value.

Among the 6 ERP implementation factors (user training, change management and vendor support) are found to be statistically significant predictors of the recruitment and selection. Top management support, effective communication and user acceptance are not statistically significant predictors of recruitment and selection.

On the other hand, top management support and user training are statistically significant with training and development. The other 4 factors of ERP implementation are not statistically significant with training and development. Effective communication and change management are not stastically significant predictor of training development with beta -0.059 and -0.054 respectively, which indicates that effective communication and change management are inversely related with training and development.

The beta coefficient result reveals that top management support, change management, and vendor support are statistically significant predictors of compensation and benefits. User training, effective communication and user acceptance are found not statistically significant with compensation and benefits. User training is not a stastically significant predictor of compensation and benefits with beta -0.157, which indicates that user training is inversely related with compensation and benefits.

4.5.3 Multiple Linear Regression Analysis for organizational productivity, ERP implementation factors and HRM effectiveness

In this section the mediation analysis of predicting organizational productivity from the factors of ERP implementation and the HRM effectivness is presented as follows;

Model Summary for organizational productivity, ERP implementation factors and HRM effectiveness

The multiple regression of the 6 ERP implementation factors, HRM effectiveness (recruitment and selection, training and development and compensation and benefits) and organizational productivity is revealed in table 4.19.

Table 4.19 Model Summary for organizational productivity, ERP implementation factors and HRM effectiveness

Model Summary				
Model	R	R Square	Adjusted R Square,	Std. Error of the Estimate
1	.795[a]	0.633	0.616	2.22050
a. Predictors: (Constant), UT, CM, TOS, UA, EC, VS, REQSEL, TRDEV and COMP b. dependent variable : Organizational productivity				

Source: SPSS output survey V26 (2022).

In the model summary of Table 4.19, the multiple correlation coefficients R, indicates a strong association of predicting organizational productivity from HRM effectivness and the 6 independent variables. Thus, $R^{2,}$= 0.633 indicates that the model accounts 63.3% of the variation in the organizational productivity, HRM effectiveness and independent variables.

ANOVA Model Fit for organizational productivity, ERP implementation factors and HRM effectiveness

As it can be seen from the below table 4.20 the value of R and R^2 found from the model summary is statistically significant at (F=38.840), (P<0.001) and it can be concluded that there is a relationship between organizational productivity, HRM effectivness (Recruitment and selection, training and development and compensation and benefits) and the predictors (ERP implementation factors).

Table 4.20 ANOVA Model Fit organizational productivity, ERP implementation factors HRM effectiveness

ANOVA[a]						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	1723.569	9	191.508	38.840	.000[b]
	Residual	1000.919	203	4.931		
	Total	2724.488	212			
a. Dependent Variable: organizational productivity						
b. Predictors: (Constant), COMPB, UT, CM, TRDEV, REQSEL, TOS, UA, EC, VS						

Source: SPSS output survey V26 (2022).

Beta Coefficient for Independent, Mediating and Dependent variables

- **Standardized Beta Coefficient**

Table 4.21 below reveals that the standardized coefficient of user acceptance is the highest value followed by recruitment and selection. The significance tests of the 9 variables indicate that 5 of the independent and mediating variables are significant with p-value ($p<0.05$) for predicting organizational productivity. The remaining 4 variables have a p-value ($p>0.05$), which indicates that these factors are not statistically significant to predict organizational productivity.

Table 4.21 Beta Coefficient organizational productivity, ERP implementation factors and HRM effectiveness

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	0.045	1.472		0.031	0.976
	Top management support	0.110	0.082	0.070	1.344	0.180
	User training	-0.033	0.082	-0.021	-0.399	0.690
	Effective communication	0.320	0.096	0.199	3.345	0.001
	Change management	0.047	0.095	0.026	0.498	0.619
	Vendor support	0.298	0.101	0.190	2.936	0.004
	User acceptance	0.597	0.111	0.304	5.400	0.000
	Recruitment and selection	0.372	0.092	0.229	4.039	0.000
	Training and development	0.059	0.139	0.022	0.421	0.674
	Compensation and benefits	0.128	0.094	0.087	1.357	0.176
a. Dependent Variable: Organizational productivity						

Source: SPSS output survey V26 (2022).

- **Unstandardized Coefficients**

The unstandardized coefficients ($\beta 1$ to $\beta 6$) are the coefficients of the estimated regression model. Thus, by including the error term (ε).

$$Y = \beta 0 + \beta 1X1 + \beta 2X2 + \beta 3X3 + \beta 4X4 + \beta 5X5 + \beta 6X6 + 7X7 + \beta 8X8 + \beta 9X9 + \varepsilon$$

$$Y = 0.045 + 0.075X_1 + 0.176\ X_2 + 0.141\ X_3 + 0.164\ X_4 + 0.264\ X_5 + 0.024\ X_6 + 0.024\ X_7 + 0.024\ X_8 + 0.024\ X_9 + 1.8337$$

The intercept ($\beta 0$) explains the point on the vertical axis where the regression line crosses the Y axis. The value $\beta 0$ is 1.620 , 2.321 and 0.110 which indicates that expected value of recruitment and selection, training and development and compensation and benefits are 1.620 , 2.321 and 0.110 respectively when all the 6 independent variables assume zero value.

Among the independent and mediating variables (effective communication, vendor support, user acceptance and recruitment and selection) are found to be statistically significant predictors of organizational productivity. Top management support, change management, training and development and compensation and benefit are not statistically significant predictors of organizational productivity. User training is not a statically significant predictor of organizational productivity with beta -0.033, which indicates that user training is inversely related with organizational productivity.

4.6 Discussion of the Study

4.6.1 Top Management Support

Based on the mean comparison of the six ERP implementation factors, top management support is ranked second with mean value of 3.3157. 53 % of the respondents rated it as agree and strongly agree as a factor of ERP implementation. This factor is positively & significantly correlated with organizational productivity with R= .443 (P<0.01). It is also statistically significant predictor of organizational productivity with beta coefficient .172 at significance level of .036.

The correlation between top management support with recruitment and selection training and development and compensation and benefits is positively and significantly correlated with R=.335, .360 and .398 respectively. It is not statically significant predictor of recruitment and selection with beta .075 at .250 significance level. It is statically significant predictor of training and development and compensation and benefit with beta .159 at significance level of .000 and with beta .198 at significance level of .002 respectively. Top management support is not statically significant predictor of organizational productivity when it is indirectly related through the mediation of HRM effectivness with beta .110 at .180 significance level.

Bhatti (2005), stated that to implement ERP system successfully, management should monitor the implementation progress and deliver clear direction of the project. Other studies have also outlined top management support as one of the important factors for ERP implementation (Ostroff et al, 2013; Sheikh et al, 2017; Nodeson et al, 2012). This indicates that many researchers find top management support as an important factor of ERP implementation. Hence, the result is consistent with other researchers result on the area.

4.6.2 User Training

As the mean comparison of the six ERP implementation factors reveals, user training is ranked fourth with mean value of 3.2899. 54 % of the respondents rated it as agree and strongly agree as a factor of ERP implementation. This factor is positively & significantly correlated with

organizational productivity with R= .344 (P<0.01). It is not statistically significant predictor of organizational productivity with beta coefficient .018 at significance level of .824.

The correlation between user training with recruitment and selection and training and development is positively and significantly correlated with R=.377 and .249 respectively. Whereas the correlation between user training with compensation and benefits is positive and insignificantly correlated with R= .072. It is statically significant predictor of recruitment and selection and training and development with beta .176 at significance level of .007, .096 at significance level of .029. However, it is not statically significant predictor of compensation and benefits with beta -157 at significance level of .015 respectively, which shows that user training is inversely related with compensation and mangement. User training is not statically significant predictor of organizational productivity when it is indirectly related through the mediation of HRM effectivness with beta -.033 at .690 significance level, which indicates that user training is inversely related with organizational productivity.

Hence, from the findings it can be realized that there is not adequate user training in Commercial Bank of Ethiopia. Bhatti (2005), also asserted that ERP implementation may fail due of lack of proper user training. Al-Mashari (2006) have outlined the aim of training is to provide basic concepts and features of ERP system. Nicolaou & Bhattacharya (2005), asserted that staffs are not willingly participate within the training sessions and not learn updated knowledge if they do not get the right guidance. The result is consistent with other research on the area.

4.6.3 Effective Communication

Effective communication ranked third from the six factors for ERP implementation with mean value of 3.2923. 51 % of the respondents rated it as agree and strongly agree as a factor of ERP implementation. This factor is positively & significantly correlated with organizational productivity with R= .592 (P<0.01). It is also statistically significant predictor of organizational productivity with beta coefficient .369 at significance level of .000.

The correlation between effective communication with recruitment and selection training and development and compensation and benefits is positively and significantly correlated with R=.448, .176 and .317 respectively. It is not statically significant predictor of recruitment and

selection and compensation and benefits with beta .141 at .070 significance level and with beta .001 at .989 significance level respectively. It is not stastically significant predictor of training and development beta -.059 at .259 signifcance level, which indicates that effective communication is inversely related with training and development. Effective communication is statically significant predictor of organizational productivity when it is indirectly related through the mediation of HRM effectivness with beta .320 at .001 significance level.

Vayyavur (2015), asserted that most of the ERP system adoption showed that aspects like communication efficiency are internal factors affecting the adoption of the ERP system. Lijie & Lyoriobhe (2019) argued that communication could be a crucial tool to HRM. All the responsibilities of HR cannot be achieved without communication with the workers. Thus, the result is consistent with other researches conducted on the area.

4.6.4 Change Management

Change management ranked first from the six factors for ERP implementation with mean value of 3.3650. 60.1% of the respondents rated it as agree and strongly agree as a factor of ERP implementation. This factor is positively & significantly correlated with organizational productivity with R= .347 ($P<0.01$). However, it is not statistically significant predictor of organizational productivity with beta coefficient .139 at significance level of .131.

The correlation between change management with recruitment and selection and compensation and benefits is positively and significantly correlated with R=.286 and .292 respectively. Whereas the correlation between change management with training and development is positively and insignificantly related with R=.743. It is statically significant predictor of recruitment and selection and compensation and benefit with beta .164 at .024 significance level and with beta .261 at .000 significance level respectively. It is not statically significant predictor of training and development with beta, -.054 at .266 significance level, which shows that change management is inversely related with training and development. Change management is not statically significant predictor of organizational productivity when it is indirectly related through the mediation of HRM effectivness with beta .047 at .619 significance level.

Vidyaranya & Cydnee (2005), argued that organizations have cultural diversity as each department has different business needs. They found that with a new system coming into place reengineering needs to be done both for people involved and for business process. Muma (2016), stated that because of the adoption of change management practices in ERP implementation organizations can achieve returns on the heavy financial investment in ERP. Thus, the result is consistent with other researches conducted on the area.

4.6.5 Vendor Support

Vendor support ranked fifth from the six factors for ERP implementation with mean value of 3.1972. 46.5% of the respondents rated it as disagree and neutral as a factor of ERP implementation. This factor is positively & significantly correlated with organizational productivity with R= .590 ($P<0.01$). It is also statistically significant predictor of organizational productivity with beta coefficient .469 at significance level of .000.

The correlation between vendor support with recruitment and selection, training and development and compensation and benefits is positively and significantly correlated with R=.424, .237 and .620 respectively. It is statically significant predictor of recruitment and selection and compensation and benefit with beta .264 at .000 significance level and with beta .546 at .000 significance level respectively. It is not statically significant predictor of training and development with beta, -.049 at .278 significance level. Vendor support is statically significant predictor of organizational productivity when it is indirectly related through the mediation of HRM effectivness with beta .298 at .004 significance level.

Vilpola (2008), confirmed that having qualified vendor support may could also be a fabric advantage in implementing the ERP system stage. Zhang et al., (2002), also stated that support from the vendor involves the response time to enquiries from the project team and manager. Based on this, it can be concluded that the result is consistent with other researches on the area.

4.6.6 User Acceptance

User acceptance ranked sixth from the six factors for ERP implementation with mean value of 3.1283. 47.7% of the respondents rated it as disagree and neutral as a factor of ERP implementation. This factor is positively & significantly correlated with organizational

productivity with R= .640 (P<0.01). It is also statistically significant predictor of organizational productivity with beta coefficient .625 at significance level of .000.

The correlation between User acceptance with recruitment and selection, training and development and compensation and benefits is positively and significantly correlated with R=.365, .229 and .408 respectively. However, it is not statically significant predictor of recruitment and selection, training and development and compensation and benefit with beta .024 at .793 significance level, with beta .100 at .104 and with beta .103 at .247 significance level respectively. User acceptance is statically significant predictor of organizational productivity when it is indirectly related through the mediation of HRM effectivness with beta .597 at .000 significance level.

Wang and Chen (2006), stated that user acceptance of technology is additionally a determiner for successful ERP system implementation. Other studies outlined that end users are more skeptical about the newly implemented complex system, which is reflected within the rejection or under-utilization. They have also outlined that user-related factors as critical risk factors for the ERP implementation projects, including the complex nature of the projects (Amoako, 2004; Migdadi, 2009). Hence, the result is consistent with other research on the area.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMONDATIONS

5.1 Summary of Findings

This research conducted to investigate the effect of ERP implementation on organizational productivity through the mediating effect of HRM effectiveness at commercial Bank of Ethiopia.

The first research objective is to identify factors that affect ERP implementation. Result of the survey data by using frequency and percent shows that concerning top management support most of the respondents answered agreed and strongly agreed. Similarly, the majority of the respondents responded agree and strongly agree for user training, effective communication, change management and vendor support and user acceptance. Thus, the survey data indicates that all the independent variables have positive impact for successful implementation of ERP in Commercial Bank of Ethiopia.

The second research objective is to examine the relationship of ERP implementation with organizational productivity. The majority of the respondents believe that ERP improves the overall organizational performance. The correlation result of the six ERP implementation factors indicates a positive and significant relationship with organizational productivity. The regression analysis shows that R^2= 0.596 indicates that the model accounts 59.6% of the variation in the organizational productivity and ERP implementation factors. The ANOVA test result shows that R and R^2 found from the model summary was statistically significant at (F=50.546) (P<0.001). The beta coefficient output indicates that four of ERP implementation factors have significant relationship with organizational productivity (top management support, effective communication, vendor support and user acceptance). User training and change management has stastically insignifcant relationship with organizational productivity.

The third research objective is to evaluate the relationship of ERP implementation factors with HRM effectivness. The correlation analysis for ERP implementation factors and HRM effectivness indicates that top management support, vendor support and user acceptance have positive and significant relationship with the effectivness of HRM. User training has positive and significant relationship with recruitment and selection and training and development. It has

positive and insignificant relationship with compensation and benefits. Effective communication and change management are insignificantly related with training and development.

The output from regression analysis reveals that among the six ERP implementation factors user training, change management and vendor support has significant relationship with recruitment and selection. Top management support, effective communication and user acceptance has insignificant relationship with recruitment and selection. Only two variables top management support and user training have significant relationship with training and development. Vendor support and user acceptance have insignificant relationship with training and development. Effective communication and change management are not statically significant predictor of training development, which indicates that effective communication and change management are inversely related with training and development. Four independent variables (top management support, user training, change management and vendor support) have positive and significant relationship with compensation and benefits. User training is not a statically significant predictor of compensation and benefits, which indicates that user training is inversely related with compensation and benefits.

The multiple linear regression analysis output for organizational productivity and ERP implementation factor by using HRM effectiveness is indicated by the regression model summary, R^2= .633 which depicts that the model accounts for 63.3 of the variation in organizational productivity is explained by the combination of all the independent and mediating variables.

The ANOVA test result showed that R and R^2 found from the model summary was statistically significant at (F=38.840), P<0.001). The beta coefficient output shows that 4 of the independent and mediating variables (effective communication, vendor support, user acceptance and recuritement and selection) are significant with p-value ($p<0.05$) for predicting organizational productivity. The remaining variables (Top management support, change management, training and development and compensation and benefits) have a p-value ($p>0.05$), which indicates that these factors are statistically insignificant to predict organizational productivity. User training is not a statically significant predictor of organizational productivity,which indicates that user training is inversely related with organizational productivity.

5.2 Conclusion

The main objective of this study is to examine the effect of ERP implementation on Human resource management effectiveness in reference to Commercial Bank of Ethiopia. Thus, based on the above findings the study let to the following conclusive issues;

The six independent variables have positive effect for successful implementation of ERP in Commercial Bank of Ethiopia.

Top management support is positively and significantly correlated with organizational productivity. It is one of the major factors for ERP software adaptors to succeed in implementation of ERP. It is consistent with the literature. Hence, from the findings it can be concluded that this variable is well managed in Commercial bank of Ethiopia in the implementation of the ERP system. It is also positively and significantly correlated with HRM effectivness. However, it is not statically significant predictor of organizational productivity when it is indirectly related through the mediation of HRM effectivness.

The findings of the study indicated that user training is not statically significant predictor of organizational productivity when it is indirectly related through the mediation of HRM effectivness. This indicates that the staffs didn't get sophisticated and simplified training about ERP before they start using the system and while they are using the system.

Effective communication is one of the important factors of ERP implementation. It is positively and significantly correlated with organizational productivity. It is positively and significantly correlated with effectivness of HRM, except it is insignificant relationship with training and development. It is also statically significant predictor of organizational productivity when it is indirectly related through the mediation of HRM effectivness. This indicates that there is awareness was created to staffs about the importance of implementing ERP before they start using the system.

Change management is positively and significantly correlated with organizational productivity. It has also positively and significantly correlated with recruitment and selection and compensation and benefits. However, it is correlation with training and development is insignificant. It is not statically significant predictor of organizational productivity when it is indirectly related through

the mediation of HRM effectivness. In order to implement any system the staffs should fully accept the change attitude.

Vendor support is positively and significantly correlated with organizational productivity. It is correlation HRM effectivness is positive and significant. It is also statically significant predictor of organizational productivity when it is indirectly related through the mediation of HRM effectivness. This indicates that the CBE gets well support from the vendor of ERP.

User acceptance is positively and significantly correlated with organizational productivity. The correlation between user acceptance with recruitment and selection and training and development is positively and significantly correlated. It is not statically significant predictor of recruitment and selection. It is statically significant predictor of organizational productivity when it is indirectly related through the mediation of HRM effectivness. User acceptance is very crucial to achieve effective implementation of ERP in HRM environment.

In general, the findings indicate that four of the ERP implementation factors; top management support, effective communication, vendor support and user acceptance shows positive and significant result when directly related with organizational productivity. User training and change management are not stastically significant predictors of organizational productivity.

Regarding ERP implementation factors relationship with HRM effectivness all the six ERP implementation factors have positive relationship with HRM functions except effective communication and change management which are not statically significant predictor of training development, which indicates that effective communication and change management are inversely related with training and development. User training is not also a statically significant predictor of compensation and benefits, which indicates that user training is inversely related with compensation and benefits.

The indirect relationship of ERP implementation factors with organizational productivity through the mediation of HRM effectivness indicated that three of the independent variables (Effective communication, vendor support and user acceptance) are statically significant predictor of organizational productivity. On the other hand (Top management support, user training and change management) are not statically significant predictor of organizational productivity.

Hence, HRM effectivness have mediating role for half of the independent variables and it doesn't have any mediating role for the remaining half independent variables.

5.3 Recommendation

Based on the above findings and conclusions, the following recommendations are recommended.

- Commercial bank of Ethiopia should focus on giving sophisticated and continuous update and training for the Human resource management department staffs in order to use ERP on HRM effectively. The bank should give role-based ERP training for HRM managers and professionals so that the staffs are concentrated and practice on the tasks that are related to their job, which helps them to adapt and learn ERP quickly.
- Even though most of the variables show positive relationship and moderate results with ERP implementation Commercial bank of Ethiopia is far from implementing ERP very well. Thus, the bank should focus on better using of the ERP system especially, by focusing on organizational productivity in terms of employees. Based on the above result, most of the employees believe ERP has not helped in forecasting the staff needs like allotment of house promotion etc. Hence, the managers of the bank should assess their benefit package and use ERP to forecast their staffs need, because a motivated employee will increase the organizational productivity by using ERP system effectively.

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APPENDIXS

APPENDIX

A Questionnaire

ADDIS ABABA UNIVERSTY

College of Business and Economics

DEPARTMNET OF MANAGEMENT

Dear Respondents, the following questionnaire is developed by student Yeshiemebet Aragae from Addis Ababa University College of Business and Economics to study the effect of Enterprise Resource Planning implementation on Human Resource Management effectiveness at Commercial Bank of Ethiopia in fulfilling the requirement of Masters of Science in Management. I kindly request your help in responding the following questions for the successful completion of my study. Please do not write your name on the questionnaire. The major objective of responding this questionnaire is only for academic purpose. Your response will not be used for any other purpose; it is confidential. Thank you very much for your cooperation to fill this questionnaire. Do not hesitate to contact me for any information with 0911972401 or shmbtrg@gmail.com.

PART I: Demographic Information

1. Gender: M ☐ F ☐

2. Educational level?

Diploma Degree ☐ Masters ☐ PhD ☐

If other specify_____

3. Age

21-30 ☐ 31-40 ☐ 41-50 ☐ 51-60 above 60 ☐

4. Position in the organization?

Professional ☐ Specialist ☐ Supervisor ☐ Manager ☐ Officer ☐

5. Year of experience in CBE?

Below 5 ☐ 6-10 ☐ 11-15 ☐ 16-20 ☐ 21 and above ☐

6. Year of experience in using ERP software: _____

Below 1 ☐ 2-3 ☐ 4-5 ☐

Part II: ERP Implementation Factors

Please show your level of agreement on the statements by circling the numbers in the column using the following rating scale.

Where: 1 = Strongly Disagree 2 = Disagree 3 = Neutral 4 =h Agree 5 = Strongly Agree

No	Questions	Scale				
1	**Top Management support**					
1.1	Top management has allocated the necessary resources for ERP implementation	1	2	3	4	5
1.2	Top management regularly gets updated with the implementation process progress	1	2	3	4	5
1.3	Top management interferes and corrects the implementation process when needed	1	2	3	4	5
1.4	Top management has delegated implementation authority for project managers	1	2	3	4	5
2,	**User Training**					
2.1	The bank has supplied all resources required for training	1	2	3	4	5
2.2	The training program was given by highly qualified consultants and trainers	1	2	3	4	5
2.3	Internal employees have been intensively trained on the system	1	2	3	4	5
2.4	The training programs was well designed for end-users	1	2	3	4	5
3	**Communication**					
3.1	Staffs were aware about the resources the bank has been allocated in ERP system	1	2	3	4	5
3.2	Employees were aware about the importance of the system for the bank	1	2	3	4	5
3.3	The bank has communicated the ERP systems objectives with the staffs and its impact on their jobs.	1	2	3	4	5
3.4	Employees have been well trained about the system benefits for the bank	1	2	3	4	5
4	**Change management**					

4.1	Employees were aware of the change and ready to deal with	1	2	3	4	5
4.2	Employees were previewed with ERP utilization before start using it through training.	1	2	3	4	5
4.3	Employees have been involved in the design of the new system and satisfied with it	1	2	3	4	5
4.4	Employees were educated about the importance of ERP system and motivated to use it	1	2	3	4	5
5	**Vendor Support**					
5.1	Vendor consultants have offered well designed and intensive training programs for end users.	1	2	3	4	5
5.2	Vendor was ready to solve and troubleshooting any technical or procedural problem during the implementation.	1	2	3	4	5
5.3	Vendor has a quick response to company needs.	1	2	3	4	5
5.4	Vendor's support has continued even after implementing the system in terms of maintenance and upgrading the system	1	2	3	4	5
6	**User Acceptance**					
6.1	The user community was involved throughout the ERP implementation project.	1	2	3	4	5
6.2	Users participated in determining systems needs and capabilities	1	2	3	4	5
6.3	Users participated in identifying input/output needs	1	2	3	4	5

Part III: Effect of ERP implementation on HRM effectivness

Please show your level of agreement on the statements by circling the numbers in the column using the following rating scale.

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

No	**Items**	**Scale**				
1	**Recruitment and selection**					
1.1	ERP has decreased the time spent on recruiting and improved the recruitment process	1	2	3	4	5
1.2	ERP has decreased recruiting expenses	1	2	3	4	5
1.3	ERP has helped with forecasting need of more staff	1	2	3	4	5

1.4	ERP has decreased the time spent on processing paperwork	1	2	3	4	5
2	**Training and Development**					
2.1	ERP has decreased the time spent on training and improved the training process	1	2	3	4	5
2.2	ERP has decreased training expenses	1	2	3	4	5
3	**Compensation and Benefit**					
3.1	ERP compensation management system helps in smooth function of payroll management	1	2	3	4	5
3.2	ERP has decreased the time spent on making staff decisions	1	2	3	4	5
3.3	ERP has helped in forecasting the staff needs like allotment of house, promotions etc	1	2	3	4	5
3.4	ERP has created environment of open communication between employees and management	1	2	3	4	5

Part IV: Organizational Productivity in terms of employees

Please show your level of agreement on the statements by circling the numbers in the column using the following rating scale.

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

No	**Items**	**Response**				
1	ERP has helped in improving decision making process	1	2	3	4	5
2	ERP helps in coordinating among departments of the Bank	1	2	3	4	5
3	ERP improves evaluation of annual budget reports	1	2	3	4	5
4	ERP helps in increasing the Bank's Profit	1	2	3	4	5
5	ERP helps in improving strategic planning	1	2	3	4	5
6	ERP helps in controlling the Bank's clients and suppliers properly	1	2	3	4	5
7	Staff performance is improved after the implementation of ERP	1	2	3	4	5

Thank You!!