



Adama Science and Technology University
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Department of Computing

Enterprise Resource Planning Framework Design for First
Level City Administration's Finance and Economic
Development Offices in Oromia Region

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DECLARATION

This thesis is my original work and has not been submitted for a degree in any university.

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The thesis has been submitted for examination with my approval as university advisor.

Dr. Shimelis Assefa

September 2016

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ABSTRACT

Nowadays we are breathing in a globalized world, when competition and struggle is very high. Enterprise Resource Planning (ERP) is software that integrates departments and functions across an organization in to one computer system to streamline all the organizational process. Thus each department across the organization shares a common centralized database, which enables the flow of information in the organization to be faster and reliable. Developing countries like Ethiopia are not yet benefiting much from ERP systems while these systems are widely adopted in the developed countries. However, demand to ERP is increasing to the developing countries also due to economic growth and globalization. This paper describes ERP framework design for first level city administration's finance and economic development offices in Oromia region. To achieve this goal, the researcher reviewed existing general ERP framework components and the process of various departments of First level city administration's finance and economic development offices and also used questionnaire, interview, observation or participation to collect data. Finally, by analyzing collected data the researcher designed a frame work that is suitable for the first level city administration's finance and economic development offices that show the integration among the internal departments.

Keywords: - Enterprise Resource Planning; ERP framework design; Integrated Budget and Expenditure System;Data collection; Business Process Reengineering

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LIST OF ACRONYMS

ERP	Enterprise Resource Planning
IBEX	Integrated Budget and Expenditure System
FLCAFEDOOR	First Level City Administration's Finance and Economic Development Office in Oromia Region
ICT	Information and Communication Technology
MIS	Management Information System
HRM	Human Resource Management
GPS	Global Positioning System
NGO	Non-Governmental Organization
BPR	Business Process Reengineering
IT	Information Technology
IS	Information System
MRP	Material Requirements Planning
MRPII	Manufacturing Requirements Planning
EOQ	Economic Order Quality
MPS	Master Production Schedule
LAN	Local Area Networks
WAN	Wide Area Networks
ODBC	Open Database Connectivity
SCM	Supply Chain Management
DBMS	Data Base Management System
CRM	Customer Relation Management

CHAPTER ONE

1. INTRODUCTION

1.1. BACKGROUND INFORMATION

The unprecedented growth of Information and Communication Technologies (ICT) driven by computer hardware and software systems has influenced all facets of computing applications across organizations. In a highly competitive global business environment, firms seek to improve or maintain their competitiveness by using information systems to improve customer service, shorten cycle times, and reduce cost [1].

The complex nature of some functional units require more inter-functional data flow for decision making, timely and efficient procurement of product parts, management of inventory, accounting and human resources. As one part of information system tool, Enterprise Resource planning (ERP) as a business management system comprises integrated sets of comprehensive software which can be used when successfully implemented to manage and integrate all the business functions within an organization. It is generally a misleading perception that implementing an ERP system will improve organization's functionalities overnight. The high expectation of achieving all-round cost savings and service improvements is very much dependent on how good the chosen ERP system fits to the organizational functionalities and how well the tailoring and configuration process of the system matched with the business culture, strategy and structure of the organization.

The Eleventh Edition of the American Production and Inventory Control Society Dictionary defines Enterprise Resource Planning (ERP) as a “framework for organizing, defining, and standardizing the business processes necessary to effectively plan and control an organization so the organization can its internal knowledge to seek external advantage” This definition highlights the broad scope of applications that fit under ERP framework. A recent and comprehensive definition of ERP states enterprise resource planning (ERP) system as “a set of business applications or modules, which links various business units of an organization such as financial, accounting, manufacturing, and human resources into a tightly integrated single system with a common platform for flow of information across the entire business” [2].

Enterprise Resource Planning (ERP) started in 1990s for integrating all information in business at a single place for better control and management [3]. The benefits from ERP implementation are: changes organization culture with common vision, better resource management, improved financial management, better report generation, improved alignment of strategies, improved data quality, improved coordination and communication among users and many more [4]. Many researchers have identified various critical success factors for the successful ERP implementation. These include top management support, business process reengineering, user motivation, training, infrastructure cost, customization efforts, deployment strategies and vendor selection.

The components of an ERP system are the common components of a Management Information System (MIS). These are:

- Enterprise Resource Planning Software: Module based ERP software is the core of an ERP system. Each software module automates business activities of a functional area within an organization. Common ERP software modules include product planning, parts purchasing, inventory control, product distribution, order tracking, finance, and accounting and human resources aspects of an organization.
- Processes: Processes within an organization falls into three levels - strategic planning, management control and operational control. ERP has been promoted as solutions for supporting or streamlining processes at all levels. Much of ERP success, however, has been limited to the integration of various functional departments.
- Enterprise Resource Planning: Users: The users of ERP systems are employees of the organization at all levels, from workers, supervisors, mid-level managers to executives.
- Hardware and Operating Systems: Many large ERP systems are UNIX based. Windows NT and Linux are other popular operating systems to run ERP software.

First level city administration's finance and economic development offices in Oromia Region (FLCAFEDOOR) were established in 1994 according to proclamation no.127/1994. Even though the numbers of city administrations to become upgraded to First level city administration is increasing from time to time; they are six in numbers until the proposal of this thesis was proposed. These cities are Adama city administration finance and economic development office, Bishoftu city administration finance and economic development office,

Shashemene city administration finance and economic development office, Sebata city administration finance and economic development office, Burayu city administration finance and economic development office and Jimma city administration finance and economic development office. Each First level city administration's finance and economic development offices in Oromia Region has similar organizational structure and has five main departments.

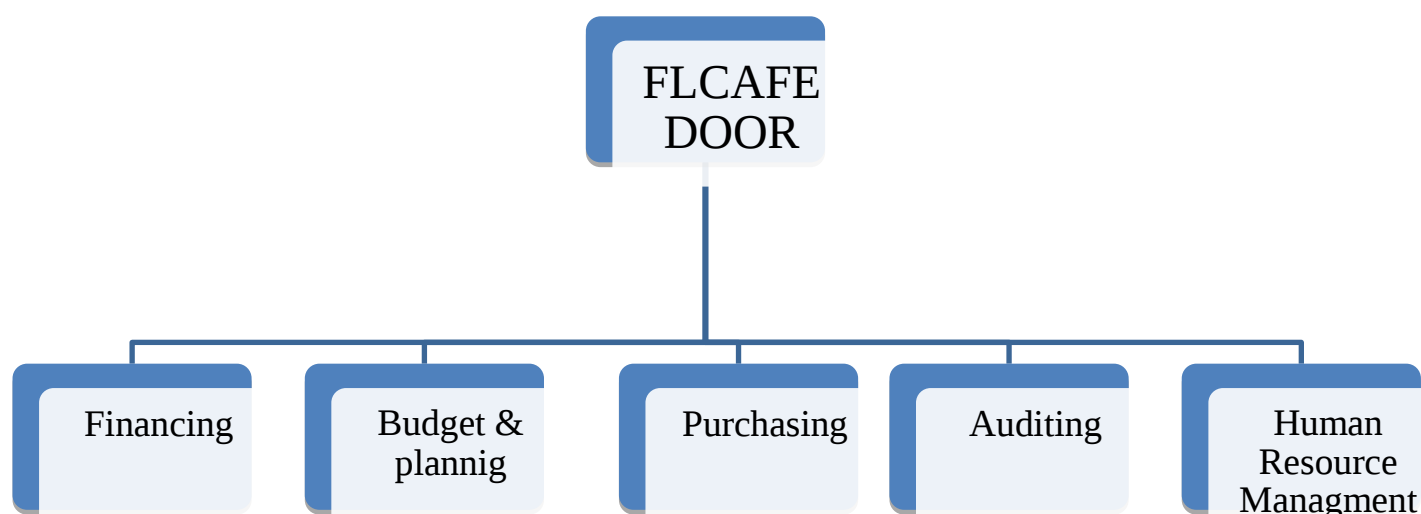


Figure 1.1.Organizational Structures of each of the First level city administration's finance and economic development offices in Oromia Region.

Source: Profile of Adama city administration finance and economic development office

Financing Department: is the core of many ERP software systems. Both profit organizations and non-profit organizations benefited from the implementation of ERP in financial module. It can gather financial data from various functional departments, generates valuable financial reports such as balance sheet, general ledger, trail balance, quarterly and annual financial statements.

Budget and planning Department: Processing for determining and detailing an office's long- and short-term financial goals and controls allocated budget of the city administration.

Purchasing department: streamlines procurement and tender of required materials. It controls the processes of identifying potential suppliers, negotiating price, awarding purchase order to the

supplier, and billing processes. Purchase department is tightly integrated with the inventory control.

Auditing department: An independent appraisal within the offices, which operate as a service to the offices by measuring and evaluating the effectiveness of internal control system or controls other internal departments such as financing, purchasing, budget and planning, and human resource management.

Human Resource Management department: HRM (Human Resources Managements) is another widely implemented ERP module. HRM module streamlines the management of human resources and human capitals. HRM department routinely maintain a complete employee database including contact information, salary details, attendance, performance evaluation and promotion of all employees.

Main objectives of the offices are: planning and administering the economic development of the city, administering city's resources expenditure payments and controlling accounting principles. The mission and vision of first level city administration's finance and economic development offices are: "To improve the standard of living of the people through utilization of the city's resource in a coordinated, transparent and efficient manner." and "To see the city people freed from absolute poverty where working culture develop and its resources utilized efficiently." respectively.

Each office of the First level city administration's finance and economic development also has the following main duties and responsibilities.

- Prepares annual budget (Capital and Recurrent) and presents for the council of city administration for last decision and administers the approved budget.
- Prepares strategic, tactical and operational plan of projects carried out by government and society budget with the help of responsible bodies to evaluate, monitor and gives technical support and training.
- Allocates budget for each government sectors in the city administration based on necessary criteria and reports for their own zone Finance and economic development office.

- Develops guidelines about purchasing and using government properties and works for its implementation.
- Administer government properties that are not administered by either governmental organization or properties that are not utilized yet or not administered by person or legal entity.
- Prepares statistical and profile of the city administration by collecting natural resources economy using Global Positioning System (GPS) and society's data.
- Controls the activities of Non-Governmental Organization (NGOs).
- Realizes interests and advantages of women within the city administration's economic development.

The existing financial management software in first level city administration's finance and economic development offices is known as Integrated Budget and Expenditure System (IBEX). Before the implementation of Integrated Budget and Expenditure System, first level city administration's finance and economic development offices had been working manually to serve their customers. When the requests of expenditure come from public body, an accountant checks manually whether an approved budget is existed or not on a given budget code that takes too long time. To improve this manual paper based that increased the customers' waiting time and which resulted in dissatisfaction of customers; First level city administration's finance and economic development offices have been used IBEX since 2009 but still three departments are using manual.

Integrated Budget and Expenditure System is an application which integrates budget and expenditure. As its name implies IBEX integrates two modules which are budget and planning and financing (expenditure). IBEX generates report from these two departments but the report does not consider other three departments which are purchasing, auditing and human resource management. Purchasing materials for FLCAFEDOOR is bulky work which IBEX does not include. The purchaser asks manually the accountant how many money (budget) the sector have before purchasing the required material to a given government sector. To solve such types of problems; the current IBEX system in each FLCAFEDOOR have to be upgraded to ERP implementation which consists all main departments of the offices. Because of this, ERP

framework design is required for further ERP implementation to integrate five departments including financing and budget and planning.

The present study aims to identify the problems faced by the users in First level city administration's finance and economic development offices, the challenges faced by management along with the factors that are important for user satisfaction, problems along with IBEX to aware the employees of FLCAFEDOOR about the necessity of ERP system for their offices through the designed ERP framework.

Business Process Reengineering (BPR) is the fundamental rethinking and radical redesign of business processes to achieve dramatic improvements in critical contemporary measures of performance such as cost, quality, service and speed [5]. Business Process Reengineering (BPR) is the analysis and design of workflows and processes within and between organizations. Business activities should be viewed as more than a collection of individual or even functional tasks; they should be broken down into processes that can be designed for maximum effectiveness, in both manufacturing and service environment [5]. BPR provides a unique way of customizing ERP [6]. If done correctly, it would produce an increase in performance through the use of information technology.

Even though there are Business Process Reengineering (BPR) and IBEX in the first level city administration's finance and economic development offices which is considered to be a powerful tool in successful ERP implementation; the offices need the design of a framework for further implementation of ERP. As mentioned above BPR consider the structure of the offices while IBEX consider integration of two departments of the offices.

The aim of using ERP is to improve end user performance by providing better managerial tools in institutions [7]. An important characteristic of ERP systems is that they are packaged software solutions rather than customized systems. As such, it comes with built-in assumptions and procedures about given organization's/offices' processes. These assumptions and procedures seldom match with those of the implementing organizations/offices existing processes. Though ERP was the most important development in the corporate use of technology in the 1990s, many ERP projects have not been effective enough and hence have been unable to achieve all the results envisaged.

1.2. STATMENT OF THE PROBLEM

As mentioned in the background information part; First level city administration's finance and economic development offices' mission and vision are: "To improve the standard of living of the people through utilization of the city's resource in a coordinated, transparent and efficient manner." and "To see the city people freed from absolute poverty where working culture develop and its resources utilized efficiently." respectively. To realize its mission and vision; it is clear that ICT is considered as a strategic tool for services and businesses in different countries and governments. The same is true in Ethiopia Oromia region. However, it is difficult to continue with the traditional working process. Globalization and economic growth demands organizations to implement and benefit from ERP systems as their back bone systems. ERP is considered as mission critical strategy in globalization [2]

First level city administration's finance and economic development offices have five main departments. Nevertheless, these departments are not integrated which means that among five main departments only two departments are integrated; the other three departments are still working separately using non computerized manual system. To automate and integrate whole (five) departments; ERP implementation is required for FLCAFEDOOR.

1.3. OBJECTIVES

The general and specific objectives of this study are as mentioned below.

1.3.1.General Objective

To design ERP framework for First level city administration's finance and economic development offices in Oromia region.

1.3.2 Specific Objective

The specific objectives of this thesis are: -

- To review literatures on the topic area specifically, on previous works related with designing a framework of ERP implementation and digesting concept of it.
- To increasing the responsiveness of the office to other government sectors and non-government sectors/any customer.
- To integrate departments.

1.4. RESEARCH QUESTIONS

This study was answered the following research questions.

- To what extent ERP implementation will bring about more efficiency and effectiveness to the work processes?
- What design framework is better suited to integrate the five departments in First level city administration's finance and economic development offices?

1.5. SIGNIFICANCE OF THE STUDY

The main significance of this study is demonstrated how ERP implementation can be initiated in the First level city administration's finance and economic development offices. In addition, this study offered a conceptual framework how best to integrate the five departments to work together in a seamless manner. Also it increases First level city administration's finance and economic development offices' employees and customer satisfaction which can be incurred and affected by delayed service delivering.

Beneficiaries of this ERP framework design are East shoa zone finance and economic development office, Oromia special zone finance and economic development office, West Arsi zone finance and economic development office and Jimma zone finance and economic development office to get integrated and summarized report of the whole departments.

1.6. SCOPE AND LIMITATION OF THE STUDY

1.6.1. Scope

Even though there are supportive departments like inventory, law, Information Technology (IT), anti-corruption in First level city administration's finance and economic development offices; this study concentrates on five main departments to design an ERP framework for further ERP implementation. Since inventory, law, anti-corruption and IT departments are supportive they can continue as supportive even if after ERP implementation.

1.6.2. Limitation

Like any other research, this study has encountered the following limitations and constraints.

- Limited literature and research on ERP in Ethiopian context for reference.
- Limited availability and access to documents related to the ERP implementation.

1.7. EVALUATION

Evaluation is one part used in technological research process. According to [8] there are different ways in which IT artifacts can be evaluated and assessed; among them some ways are functionality, completeness, usability, consistency, accuracy, performance, reliability and how it fit with the organizations /offices context. The evaluation process of this study aimed to evaluate the reliability and fitness with the First level city administration's finance and economic development offices in Oromia region. The evaluation results help to reveal the challenges of the current IBEX system and also pin point the ICT experts' suggestions that could be used for improving the designed ERP framework in future.

1.7.1 Study Method

The selected method for the evaluation part of this thesis used ICT experts of East shoa zone Finance and economic development office through questionnaire and discussion on designed ERP framework for FLCAFEDOOR. The main reason why the researcher selected these ICT experts of East Shoa Finance and economic development for this evaluation is that they are more related to the technology than other experts and also IBEX database administrators of their office. The evaluation was performed by distributing questionnaire survey to ICT experts of East shoa Finance and economic development office.

1.7.2. Participants of the Evaluation

The participants of this study were selected by the criteria of being an expert in Finance and economic development office and who have at least first degree in Computer Science or Information Technology (IT) or Management Information System (MIS) and also who took IBEX training. Because, since ERP implementation would be next version of IBEX in First level city administration's finance and economic development office. Furthermore, by assumptions that expert who have knowledge on IBEX may have hint or understand easily about ERP; that is why the researcher use the above criteria.

1.8. ORGANIZATION OF THE THESIS

This thesis contains a total of six chapters. The chapters are arranged in such a way that it follows a logical sequence in which it conveys some concepts in ERP, identify the main problems in FLCAFEDOOR's.

The contents of the chapters are as follows:

Chapter One Introduction: This chapter is to give introductory view to the reader about the thesis work, the statement of the problem, objectives, significance, scopes, limitations and evaluation of the thesis organization.

Chapter Two Literature Review: This chapter review in detail the literature available in the area of Enterprise Resource Planning. It covers the definition of Enterprise Resource planning, Evolution of Enterprise Resource Planning, Benefits of ERP, Reasons why ERP fails, Advantages of ERP, Disadvantages of ERP, Challenges to implement ERP and Business Process Reengineering.

Chapter Three Research Methodology: describe different aspects of the methods used and situations that the researcher must consider during each phase of the study. Different ways of carrying out the study and different ways of collecting information will be discussed. The purpose of this chapter is to make reader understand the methodological choices made on the study. Finally it elaborates the data and interprets the results obtained from the observation or participation, interview, literature review and questionnaire survey.

Chapter Four: Covers Data Analysis and Interpretation based on the questionnaire survey, interview, observation and survey of literature. Highlights all the factors considered in the proposed framework. It also covers an analysis to point out the main problems of each office.

Chapter Five: This chapter covers the evaluation part of this thesis. The evaluation part includes two parts; study method and participant's selection criteria.

Chapter Six: Covers Summary of Findings, Conclusion and Future works of the study. The summary part summarizes findings of the thesis, conclusion part concludes overall chapters while future work predicts what would have to be done for further implementation of ERP framework in the First level city administration's finance and economic development office.

CHAPTER TWO

2. LITERATURE REVIEW

This chapter presents the review of related literatures and imperial facts. It includes the conceptual understanding of what ERP mean, the benefits to be obtained through ERP implementation, the historical background or evolution of ERP and its related evolutionary stages, it's characteristics from the technical, organizational and information perspective, advantage and disadvantage of ERP, conceptual framework development, BPR will be dealt under literature review part.

2.1. Overview of Enterprise Resource Planning

Nowadays we are breathing in a globalized world, where competition and struggle is not missing. This is why it is necessary for managers of the enterprise to build up diverse strategies to assure customer requirements, several of which have befallen tough to see. They are struggling to predict what customers will desire or require, and in this regard they effort to put forward customized products. Organizations are finding for software that can be capable of administrating each & every aspect of their business integrally. Many of them have been seeking new technological tools which can optimize their interior or internal procedures and construct them more efficient and resourceful. It also requires a strong integration across the value chain. Hence, there is a need for a standard software package, which equips the enterprise with the necessary capabilities to integrate and synchronize the isolated functions in to streamlined business processes in order to gain a competitive edge in the violate business environment.

Most organizations across the world have realized that in a rapidly changing environment, it is impossible to create and maintain a custom-designed software package, which will cater to all their requirements and be up-to-date. Realizing the requirements of user organizations, some of the leading software companies have designed Enterprise Resource Planning software which offers an integrated software solution to all the functions of an organization. One of the significant competitive advantages in business is to faster the services to the customer. This can happen with a better strategic technology planning and often incorporation of Information System (IS) to manage this process more effective and efficiently. Those IS being the roots of today's Enterprise Resource Planning (ERP) systems.

ERP is the latest high-end solution, information technology has lent to business applications. The ERP solution seeks to streamline and integrate operation processes and information flows in the company to synergize the resources of an organization namely human resource, material capital machine through information. Initially implementation of an ERP package was possible only for large multi nationals and infrastructure companies due to high cost. Today, many companies in world have gone in for implementation of ERP. Enterprise Resource Planning (ERP) has gained popularity among many organizations that seek to increase the efficiency and productivity as well as to streamline their operations. ERP systems are a well-known concept. The available holistic literature and theory in ERP are, however, scarce.

In their research [9] discuss the issues organization face then go for off-the-shelf solutions. Common problems are misfits an ERP system has related to certain business process. These misfits' resolution is tradeoffs between organizational changes and IS customization. They also explain that a misfit analysis must be carried out early in the process. Moreover, comprehensive understanding of the critical organizational processes and detailed knowledge of this complex software are required. Enterprise Resource Planning systems are considered complex and painful to implement mainly because they force an organization to change its way of working as well as they are considerable expense, with long return on investment value [10]. Implementing an ERP system takes from one to five years. Due to those and other factors some organization found themselves in situation, where buying an ERP system cost them many times cheaper than installing and maintaining it. Often those issues lead organizations to cancel or drop of the idea of implementing particular ERP.

2.1.1. Definition of Enterprise Resource Planning

ERP systems are software packages composed of several modules, such as human resources, sales, finance and production, providing cross-organization integration of data through embedded business processes. ERP is a computer-based system designed to place companies' major activity such as: planning, production and customer service under an umbrella [11]. ERP system is a software package of different modules such as fixed asset management, controlling, financial accounting, manufacturing human resources, planning and development and so forth [11].

ERP systems were named differently by different authors, some of them are enterprise systems, enterprise wide-systems, enterprise business-systems, integrated vendor software, and

enterprise application systems, but however with no significantly different definitions and functions in order to present a holistic view of the business from a single information and IT architecture (Al-Mashari et al, 2003), [12] defines ERP system as a “customizable, standard application software which includes integrated business solutions for the core processes (example production planning and control, warehouse management) of an enterprise”. Slight differently, [13] however, defines it as a comprehensive package solutions seek to integrate the complete range of a business processes.

Enterprise Resource Planning (ERP) consists of three words: Enterprise, Resource and Planning. ERP systems include the integration of data and applications, replacement of old, fragmented legacy systems and quicker deployment of packaged systems as compared with in-house development and adoption of best practices in organizational processes [2]. According to [14], Enterprise Resource Planning (ERP) refers to large commercial software packages that promise a seamless integration of information flow throughout an organization by combining various sources of information into single software application and a single database. These software packages can be customized to cater for the specific needs of an organization. During the 1990s ERP systems became the de-facto standard for replacement of legacy systems in large and particularly multi-national companies [15]

2.1.2. Evolution of Enterprise Resource Planning

A common perspective on Enterprise Resource Planning is one that concentrates on the historical development of business integration concepts. It can be assumed that the name ERP was derived from the terms material requirements planning (MRP) and manufacturing resource planning (MRPII) [16], [17] ([18].

2.1.2.1. Economic Order Quantity (EOQ)

The most popularly known among them is Economic Order Quantity (EOQ). EOQ is the number of units that a company should add to inventory with each order to minimize the total costs of inventory such as holding costs, order costs, and shortage costs. The EOQ is used as part of a continuous review inventory system in which the level of inventory is monitored at all times and a fixed quantity is ordered each time the inventory level reaches a specific reorder point. The EOQ provides a model for calculating the appropriate reorder point and the optimal reorder

quantity to ensure the instantaneous replenishment of inventory with no shortages. It can be a valuable tool for small business owners who need to make decisions about how much inventory to keep on hand, how many items to order each time, and how often to reorder to incur the lowest possible costs.

The EOQ model assumes that demand is constant, and that inventory is depleted at a fixed rate until it reaches zero. At that point, a specific number of items arrive to return the inventory to its beginning level. Since the model assumes instantaneous replenishment, there are no inventory shortages or associated costs. Therefore, the cost of inventory under the EOQ model involves a tradeoff between inventory holding costs (the cost of storage, as well as the cost of tying up capital in inventory rather than investing it or using it for other purposes) and order costs (any fees associated with placing orders, such as delivery charges). Ordering a large amount at one time will increase a small business's holding costs, while making more frequent orders of fewer items will reduce holding costs but increase order costs. The EOQ model finds the quantity that minimizes the sum of these costs.

2.1.2.2. Material Requirements Planning (MRP)

Prior to 1960s, the business had to rely on the traditional ways of inventory management to ensure smooth functioning of organization. A tradeoff is established on a phased out expected demand of one year, and this way the most economic ordering quantity can be decided. This technique in principle is a reactive way of managing inventory. ERP began life in the 1960s as Material Requirements Planning (MRP), an outgrowth of early efforts in bill of material processing.

Material Requirement Planning (MRP) was first introduced in the 1970's as a computerized approach to planning and obtaining the required materials for manufacturing/production. MRP's inventors were looking for a better method of ordering material and components, and they found it in this technique. By comparing inventory to production quantity requirements, MRP determines if more materials need to be purchased.

The logic of material requirements planning asks the following questions: -

- What are we going to make?
- What does it take to make it?

- What do we have?
- What do we have to get?

This is called the universal manufacturing equation. Its logic applies wherever things are being produced whether they are jet aircraft, tin cans, machine tools, chemicals, cosmetics etc [19]. In addition, MRP uses Mainframe computing as the main source for input and processing. All application processing, including the user interface occurred centrally on the mainframe. The user devices were "dumb terminal" with display memory but virtually no processing power [20].

2.1.2.3. Manufacturing Resource Planning (MRPII)

In the 1980's MRP expanded from management of materials to plant and personnel planning and distribution planning, which in turn became MRPII (Manufacturing Resource Planning). As the materials requirements planning systems matured in the 1970s and 1980s, other portions of the productive system were naturally added to the computer software system. One of the first functions to be included was purchasing. The software modules were expanded to handle cost data and selling price capabilities. Additional data about work center capacity limitations were also integrated into many systems as detailed scheduling for the shop floor was provided by the MRP systems. It was quickly becoming obvious that "material requirements planning" no longer was adequate to describe the expanded system.

The initial intent for MRPII was to plan and monitor all the resources of a manufacturing firm; manufacturing, marketing, finance, and engineering through a closed loop system generating financial figures. The idea of the closed-loop system indicates that once the MRP program produce an initial production schedule, the output data is then sent to departments such as sales and operations to verify that the plans are realistic and attainable. Ideally, not only are many functions included in the output system, there is also feedback provided by the execution functions so that the planning can be kept valid at all times [21] MRP II, is a system in which the entire production environment is evaluated to allow master schedules to be adjusted and created based on feedback from current production/purchase conditions. (MRP, or MRP-I) was launched in the mid-1960s and quickly became popular for providing a logical, easily understood method for determining the number of parts, components, and materials needed for the assembly of each end item in production.

As computer power grew and demands for software applications increased, MRP systems evolved to consider other resources besides materials. Software modules were added to include functions such as scheduling, inventory control, finance, accounting, and accounts payable. MRPII also used Mainframes, but in conjunction with LAN (Local Area Networks) to input and access information. By utilizing powerful desktop computers and LANs, along with client server applications, data became decentralized. This in turn allowed departmental computing environments to emerge with local control. The benefits of local computing were many: dedicated resources meant much better response times, and departments were able to develop applications that best meet their needs. These applications were often isolated and invisible to the rest of the company, with the inability to share information and resources with other parts of the company.

Manufacturing resources planning involve three additional elements: -

- Sales & Operations Planning:- a powerful process to balance demand and supply at the volume level, thereby providing top management with far greater control over operational aspects of the business.
- Financial interface: - the ability to translate the operating plan (in pieces, pounds, gallons or other units) in to financial terms (dollars).
- Simulation:-the ability to ask “what-if” questions and to obtain actionable answers in both units and dollars. Initially this was done only on an aggregate, “rough-cut” basis, but today’s advanced planning systems enable effective simulation at very detailed levels [22]

2.1.2.4. Enterprise Resources Planning (ERP)

The latest step in this evolution is Enterprise Resource Planning (ERP). The need to harmonize the functioning on an entire company has led to the development of ERP in the 1990’s. ERP has combined more areas within the company than either MRP or MRPII. ERP uses WANs (Wide Area Networks), which allows coordination of company activities globally. The fundamentals of ERP are the same as with MRP II. However, thanks in large measure to enterprise software, ERP as a set of business processes is broader in scope, and more effective in dealing with multiple business units, financial integration is even stronger. Supply chain tools, supporting business across company boundaries, are more robust. Enterprise Resource Planning is a direct outgrowth

and extension of Manufacturing Resource Planning and as such, includes all of MRP II's capabilities. ERP is more powerful in that it:

- Applies a single set of resource planning tools across the entire enterprise.
- Provides real time integration of sales, operating and financial data.

Table 2.1 Summary of ERP evolution from 1960s to 2000s

System	Year	Focus	Architecture (Technology)	Users	Level of integration
IC(Customized inventory control software packages)	1960s	Inventory control based on traditional inventory concepts	2-tier architecture (main frame)	Plant manager and supervisory staff	No integration
MRP (materials requirement panning)	1970s	A high level scheduling, priority and capacity management system which is built around a bill of material process in a manufacturing environment.	2-tier architecture (main frame)	Plant manager and supervisory staff	Minor No integration
MRPII (manufacturing resources planning)	1980s	An extension of MRP to shop floor and distribution management activities.	2-tier architecture (main frame)	Plant manager and supervisory staff	Integrated within the manufacturing environment but not to other functions of the organization
ERP (enterprise resource planning)	1990s	MRP-II was further extended to cover areas like engineering, finance, human resources, project management, etc	3-tier architecture (client-server) RDBMS object-oriented programming	Managers, supervisory staff and end users	Integration between the functions of the organization including multisite integration

ES, ERP-II or ERP of the future (enterprise system)	2000s	Most ERP systems are enhancing their products to become “inter-organizational “and” internet enabled. “New modules are added to the product portfolio, i.e CRM,SCM data warehousing and AI	A mix of centralized and distributed architecture (client-server and internet networking)	Intra as well as extra organizational stakeholders (suppliers, customers, partners)	Integration inside as well as outside the organization
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2.1.3. Characteristics of ERP

An ERP system can be defined as an adaptable and evaluative commercial package that supports, in real time and in an integrated manner, the management of most if not all of a firm’s business processes. One can attempt to better define it by looking at its characteristics. In this regard, an attentive observer of both the research and professional literature will denote quite a number of attributes deemed to be possessed by ERP systems. For a better understanding, [23] has categorized characteristics of ERP system under three dimensions in regards to their nature, namely technical, organizational and informational.

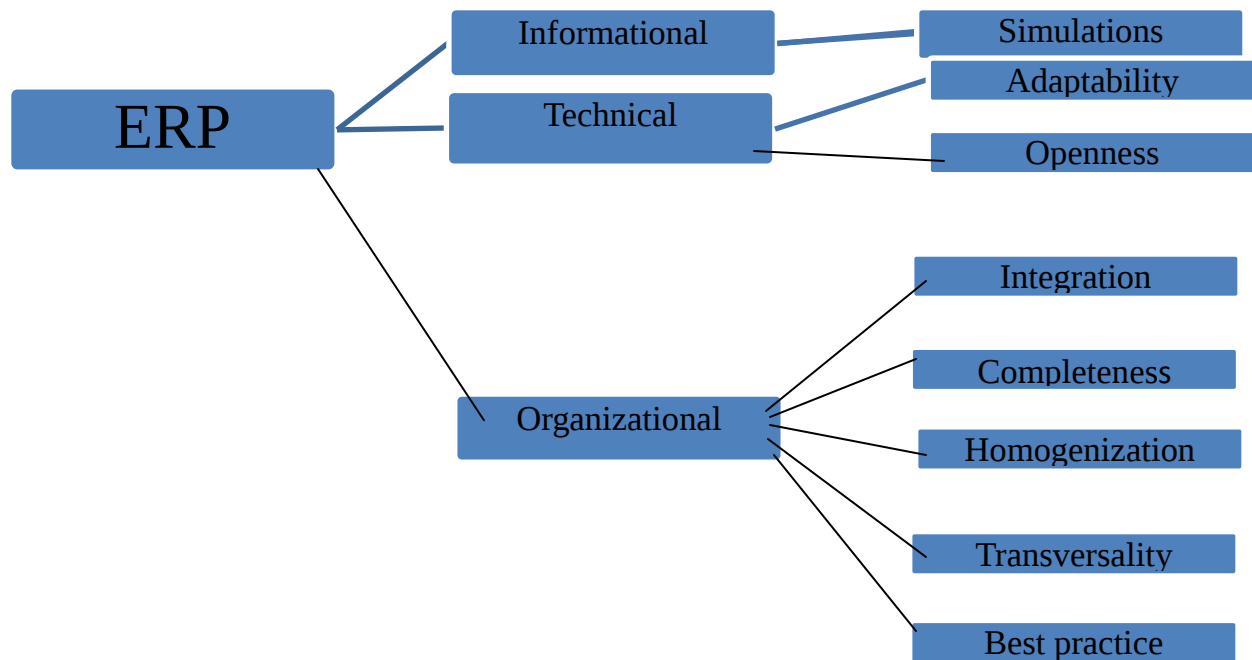


Figure 2.1. ERP characteristics under three dimensions

Source: - Enterprise Resource Planning Systems: [24]

- Informational: the informational dimension regroups characteristics that relate to the quality and usefulness of the information provided by the system, namely real-time (update and consultation) and simulation (of actual business processes).
- Technical: the technical dimension regroups characteristics that refer to the capabilities or facilities for applications development offered by ERP systems in comparison to traditional systems. This includes two basic characteristics: flexibility (adaptability) and openness (evolutionary).
- Organizational: the organizational dimension refers to the system's deployment in the firm. These are the characteristics that best reflect the impact of an ERP system on the organization, on its structure as well as its practices. This includes integration, completeness (generic function), homogenization, transversality (process-oriented view) and best practices

Table 2.2. ERP Characteristics as explained by [25]

Characteristics	Explanation
Integration	Interconnections between functions and hierarchical levels. Interaction between the various processes.
Completeness (generic function)	Wide range of functions. Applicable to various types of firms. Connectivity with the outside.
Homogenization	Unique data referential. Uniformity of human-machine interfaces. Unity of the system's administration.
Real-Time	Real-time update and consultation.
Adaptability (flexibility)	Capability to follow rule and organization changes (made possible by parametering).
Openness (Evolutionary)	Modularity. Portability.
Transversality (process-oriented view)	System designed in regard to the business processes necessary to achieve objectives. Focus on value rather than authority flows.
Simulation	Business processes can be simulated.
Best practices	System imbeds best practices in the field.

A system has to possess few key characteristics to qualify for a true ERP solution. These are: -

- **Flexibility:** An ERP system should be flexible to respond to the changing needs of an enterprise. The client server technology enables ERP to run across various database back ends through Open Database Connectivity (ODBC).
- **Modular & Open:** ERP system has to have open system architecture. This means that any module can be interfaced or detached whenever required without affecting the other modules. It should support multiple hardware platforms for the companies having heterogeneous collection of systems.
- **Comprehensive:** It should be able to support variety of organizational functions and must be suitable for a wide range of business organizations.

- Beyond the Company: It should not be confined to the organizational boundaries, rather support the on-line connectivity to the other business entities of the organization.
- Best Business Practices: It must have a collection of the best business processes applicable worldwide. An ERP package imposes its own logic on a company's strategy, culture and organization.

2.1.4. Why Organizations Undertake ERP

- Integrate financial information: As the Chief Executive Officer tries to understand the company's overall performance; he/she may find many different versions of the truth. ERP creates a single version of the truth that cannot be questioned because everyone is using the same system.
- Integrate customer order information: ERP systems can become the place where the customer order lives from the time a customer service representative receives it until the loading dock ships the merchandise and finance sends an invoice. By having this information in one software system companies can keep track of orders more easily, and coordinate manufacturing, inventory and shipping among many different locations simultaneously.
- Standardize and speed up manufacturing processes: Manufacturing companies especially those with an appetite for mergers and acquisitions often find that multiple business units across the company make the same transaction, recording and report using different methods and computer systems. ERP systems come with standard methods for automating some of the steps of a manufacturing process.
- Reduce inventory: ERP helps the manufacturing process flow more smoothly, and it improves visibility of the order fulfillment process inside the company. That can lead to reduced inventories of the materials used to make products (work-in-progress inventory), and it can help users better plan deliveries to customers, reducing the finished goods inventory at the warehouses and shipping docks.
- Standardize human resource information: Especially in companies with multiple business units, human resource may not have a unified, simple method for tracking employees' time and communicating with them about benefits and services. ERP can fix that.

According to [26] Summaries of reasons why an organization wants to implement ERP system:

- Reduced asset bases and costs,
- Enhanced decision support,
- More accurate and timely information,
- Reduced financial cycles and increased procurement leverage;
- Increased customer satisfaction through integration and consistency;
- Response to pressure from trading partners who have already converted their systems;
- Globally integrated information access across the enterprise and supply chain.

2.1.5. Benefits of ERP systems

There are various benefits ERP systems promise to provide: Provide firms with a single, unified and all-encompassing information system platform and database; eliminate the duchies and baronies that make up many modern business organizations. According to [27] benefits of ERP system

- Give general managers a firm-wide understanding of value creation and cost structure; Change business processes based on new information and knowledge; and create a customer-driven rather than traditionally production-driven organization. In addition to these benefits ERP applications also provide various benefits such as
- Increased global competitiveness,
- Increased business efficiency.
- Gives Accounts Payable personnel increased control of invoicing and payment processing and thereby boosting their productivity and eliminating their reliance on computer personnel for these operations.
- Reduce paper documents by providing on-line formats for quickly entering and retrieving information.
- Improves timeliness of information by permitting posting daily instead of monthly.
- Greater accuracy of information with detailed content, better presentation, satisfactory for the auditors.
- Improved cost control.
- Faster response and follow-up on customers.

- More efficient cash collection, material reduction in delay in payments by customers. Better monitoring and quicker resolution of queries.
- Enables quick response to change in business operations and market conditions.
- Helps to achieve competitive advantage by improving its business process.
- Improves supply-demand linkage with remote locations and branches in different countries.
- Provides a unified customer database usable by all applications.
- Improves International operations by supporting a variety of tax structures, invoicing schemes, multiple currencies, multiple period accounting and languages.
- Improves information access and management throughout the enterprise.

2.1.6. Causes for ERP System Failures

There have been many reports of unsuccessful ERP implementations within a business. The percentage of ERP implementations that can be classified as “failures” ranges from 40% to 60% or higher [28], and failures of ERP system implementation projects have been known to lead to problems as serious as organizational bankruptcy [29]. As ERP implementation failure rates are so high and the consequent impacts are so detrimental to business, there is a compelling reason for opening the “black box” to investigate the factors causing failure. In order to examine the causes of failure in the ERP implementation process, an “ERP System Life Cycle” [30] perspective was adopted, that can help to look at what goes on (e.g., problems experienced and attempts at problem resolution) at each phase of the experience cycle [30]. Previous research has focused on IS implementation for the definition of IS failure [31]. However, the majority of studies have failed to take into account the richness of the ERP failure phenomenon. Some of them are: -

- Lack of top management commitment - “Part of the blame for the lack of top management commitment may be MRP’s image. It sounds like a manufacturing system rather than a business plan. However, an MRP system is used to plan resources and develop schedules. Also, a well-functioning schedule can use the firm’s assets effectively, thus increasing profits. MRP should be accepted by top management as a planning tool with specific reference to profit results”. Executives must be educated on the use of MRP as an integrated, strategic planning tool. Failure to recognize that MRP is only a software tool that needs to be used correctly to adapt the organization and its

processes to exploit the system's capabilities. "...MRP proponents overdid themselves in selling the concept. MRP was presented and perceived as a complete and standalone system to run a firm, rather than as part of the total system".

- Insufficient user training and education - In nearly every study conducted and in many published cases, the lack of training or understanding is considered a major barrier to MRP implementation. The lack of MRP expertise, training, and education were major problems facing MRP implementers.
- Lack of technical expertise - Not only is there a need to improve user training techniques and general understanding of MRP systems, there is also a definite lack of technical expertise to provide the leadership needed to implement the systems. Not only would the technical experts need to be familiar with the operational needs of daily production, the system integrators would also need to understand how the computer software system can be built to handle the production needs. Increasingly, the advanced MRP-type systems are seeking to integrate concepts of Just-In-Time production into the computer applications system. Found "Lack of company expertise in MRP" to be the major implementation obstacle, followed closely by "Lack of training or experience on MRP." suggested that the use of external programming could compensate for the lack of technical expertise.
- MRP requires a high degree of accuracy for operation. This often requires changing how the company operates and how files are updated. Traditionally, production management allowed for plenty of excess buffer stock to be stored on site. The extra inventory stores allowed for differences between the recorded inventory and actual inventory. One of the aims of the MRP system is to minimize inventory, thus the accuracy of the recorded levels becomes critical. Engineering drawings and bills of materials must also be kept up to date if the MRP system is to function correctly. Perhaps one of the biggest complaints by users is that MRP is too rigid.

Analysis of Critical Failure Factors as Markus model could be adopted with an enhancement to measure failure and identify failure factors, as their model is flexible in including detailed elaborated activities and problems associated in each phase (starting from planning to post-implementation) [30]. Critical failure factors were assessed based on the information suggested by participants and triangulated from the documents describing the ERP implementation.

The determination of critical failure factors is based on: -

- An understanding of the ERP implementation process from the information given by participants
- Each participant's critical failure factors (validated using secondary source evidence, e.g., implementation related documents, email communications and meeting minutes) and
- A relative comparison of the most important critical failure factors with the approval from the chief informant (such as the project manager).

Table 2.3. Some main reasons of ERP implementation failure

Author	Years	Reasons of ERP Implement Failure
Wateridge	1997	The project objectives are not defined at the outset and the project invariably does not deliver the functionality required:- There is a lack of any planning and control. The users very often complain of a lack of any involvement in the project
Slater	1998	Lack of Comprehensive budgeting of project costs
Wilder and Davis	1998	Lack of aligning with business goals is the leading reasons for ERP project failure. Lack of user training and failure to completely understand how enterprise applications change business process are often the offender in a problem ERP implementation. Difficulty acquiring adequate knowledge and skill in software configuration(especially cross-module integration).
Caldwell	1998	Lack of communication with users and business managers, lack of training lack of software ease-of-use users do not understand the process and value and refuse to use the system.
Cilffe	1999	Lack of cross-functional representation ERP project team.

Glover	1999	Depend on software vendors and implementation consultants too much. No one stopped to consider why he or she is implementing ERP system, what business advantages they hoped to consider. Selection of inappropriate integrator, and/or project manager-vendor may not be familiar with the business/industry. System lacks critical controls-system personal and consultants do not understand the nature, importance, and value of well-controlled business.
Jordan and Krumwiede	1999	Failure to link technology plans to business strategic plan Failure to match the needs requirements of powerful customers.
Sweat	1999	There is not enough communication with users. Lack of mapping but business processes before implementing the software. Lack of technology transfer from external consultants.

2.1.7. Advantages of ERP

ERP makes companies more agile and flexible, allowing them to share information. All these affect their ability to react in a better way to competition and market. Deloitte classifies the benefits from ERP implementation as tangible and intangible. The tangible ones are inventory reduction, reduction of personnel, increased productivity, improvements in order management more rapid closing of financial cycles, reduction in IT and procurement costs, improvement of cash flow management, increase of revenue and profits, reduction in transportation and logistics costs, reduction in the need for system maintenance, and improvement in on-time delivery performance. Intangibles refer to the increased visibility of corporate data, new, or improved business processes, improved responsiveness to customers, unanticipated reduction in business processes, improved responsiveness to customers, unanticipated reduction in cost, tighter integration between systems, standardization of computing platforms, increased flexibility, global sharing of information, improved business performance, and improved visibility in to SCM process [32].

According to [33] the main benefits of ERP implementation are reduction of inventory and improving communication with suppliers and customers.

Some other advantages mentioned in his study are:

- Ease of use;
- Integration of all functions already established;
- Suppliers and customers can be online communications;
- Customization is an option;
- Improved decision making due to availability of timely and appropriate information;
- Improved process times;
- Internet interface is an option;
- Reduces planning inaccuracies.

On the other hand, [34] argue that one of the biggest advantages of an ERP implementation is the re-engineering of the whole organization processes to comply with the ERP and as a result change the business culture.

Table 2.4. Advantages of ERP systems

Benefits	How
Reliable information access	Common DBMS, consistent and accurate data, improved reports.
Avoid data and operations redundancy	Modules access same data from the central database, avoids multiple data input and update operations.
Delivery and cycle time reduction	Minimizes retrieving and reporting delays.
Cost reduction	Time savings, improved control by enterprise wide analysis of organizational decisions.
Easy adaptability	Changes in business processes easy to adapt and restructure.
Global outreach	Extended modules such as CRM and SCM.
Improved scalability	Structured and modular design with
E-Commerce, e-business	Internet commerce, collaborative culture

2.1.8. Disadvantages of ERP

Although there are many advantages of an ERP system, there are still some disadvantages. For example, cost is a very important issue for an organization to consider when implementing ERP systems. The high costs of implementing an ERP system are so prohibitive that they would be out of reach for many small businesses. Another disadvantage would be the security breaches within the system. It is difficult to find out who has the access to the system and who can change the information within the system. Moreover, for a business, time is a valuable resource. Since an ERP system does not take a short time to implement, it may slow down the routine operations within organizations while implementing. Now, there may be a problem for those who have not been trained with the skills necessary to work with an ERP system. This is a problem which affects an organization as a whole, and many organizations have already begun to design some employee retraining programs. Since implementing an ERP system really takes much effort and resources, it is recommended that the company considers critical success factors and pitfalls before implementing an ERP system. In the future, more and more businesses will be using ERP systems to help them manage important parts of their business.

Table 2.5. Disadvantages of ERP systems according to [33]

Disadvantage	How to overcome
Time-consuming	Minimize sensitive issues, internal politics and raise general consensus.
Expensive	Cost may vary from thousands of dollars to millions. Business process reengineering cost may be extremely high.
Conformity of the modules	The architecture and components of the selected system should conform to the business processes, culture and strategic goals of the organization.
Vendor dependence	Single vendor vs. multi-vendor consideration, options for “best of breeds,” long-term committed support.
Features and complexity	ERP system may have too many features and modules so the user needs to consider carefully and implement the needful only.

2.1.9. ERP Implementation Challenges

A typical implementation of ERP project is costly, time-consuming and complex undertaking. In fact, many companies have described their ERP implementation being a nightmare. [4]; explained based on a recent study indicated that 40 % of all the ERP installations manage only partial implementation and 20 % totally fail and the remaining has been fully successful. Depending on how someone is defining failure, the percentage can be even higher.

According to [4] the major ERP challenge areas are:-

- **Complexity:** The complexity of the system implementation arises from the fact that companies have to integrate ERP software with hardware, operating systems, and database management systems and so on. Further, it initiates the changes throughout the entire organization. As ERP software comes in a ready-made package companies are required to adjust their businesses to fit the system requirements. The reasons being that even with the today's art of technology ERP systems do not fit all the requirements of a company. Moreover, changes in one component might cause the collapse of the whole system, which is designed as an integration of separate modules.
- **Costs and Benefits:** The total implementation costs of ERP include software, hardware, consulting and internal personnel costs, which usually sum to 2-3 % percent of the company's revenues [4]. Moreover, it might take years for the companies to take the advantage of the all capabilities ERP systems provide. In addition to what has been mentioned above [30], explain that success depends from the point of view from which you measure it. It can be viewed from many dimensions: in technical terms, in economic, financial or strategic business terms, in terms of smooth running of business operations, from the point of view of managers and employees or from the point of view of customers, suppliers and investors.
- **Time:** On time and within the budget is another success criterion, which in practice is no easy to achieve. Meeting deadlines is a primary concern of the ERP project management as any delay costs the company additional money. The amount of time needed for project is often underestimated. In length, the whole implementation process can take up from three to five years. [4]; explained that, considering today's business dynamics companies

cannot afford spending too much time on the technology implementation in spite of all the benefits as competitors might have enough time to overtake them.

- **Training:** Training and change management are matters that affect all the phases of the ERP implementation project. Not surprisingly, there are many challenges related to training as each user group has different needs, preferences and learning potential. For instance, the steering committee members need to have a good project over view and general idea about the functionality of the system. Project leaders instead require in-depth knowledge about system's functionality and project management. Users have to learn only those functions that are related to their tasks in addition to the understanding the new processes and procedures. Moreover [11];also explained that training is expensive and underestimating the needs and the requirements are the reasons for exceeding the budget. Skilled employees tend to switch their jobs and training of new employees will remain a continuous effort. However, the importance of training cannot be neglected and it is not something that should be conducted only before or after the implementation but rather it has to be present in each part of the ERP life cycle.

2.1.10. Conceptual Framework Development.

The results of some researchers laid the foundation for a conceptual framework which is intended to fill some of the identified research gaps. From a theoretical point of view, their goal is to:

- Provide overview of ERP benefit literature
- Understand which published work makes what kind of contribution, where they overlap and where they are complementing each other.

The practical implications of their framework are visible throughout the ERP implementation. Before the implementation, their framework intents to help with the identification and classification of possible benefits in order to convince top-management of the investment and to identify actions needed to achieve all possible benefits. They believe their framework can serve as a first step in exploring the relationship between the benefits and the possible costs to realize them. Because these costs reveal only later in the ERP lifecycle, thinking of them upfront in the early project stages may help ERP adopter to identify risks for budget overruns.

2.1.11. Business Process Reengineering

The role that process management can play in creating sustainable competitive advantage was termed as Business Process Reengineering (BPR), and was first introduced by [35]. These authors outlined a new approach to the management of processes, which, it was claimed, was producing radical improvements in performance. The driving forces behind this radical change are an extension of [36] work on competitive advantage, and were summarized by [37] as: customers who can now be very diverse, segmented, and are expectant of consultation, competition that has intensified to meet the needs of customers in every niche, and change that has become pervasive, persistent, faster and in some markets a pre-requisite.

Business Process Reengineering (BPR) is the fundamental rethinking and radical redesign of business processes to achieve dramatic improvements in critical contemporary measures of performance such as cost, quality, service, and speed [38].

Business Process Reengineering (BPR) is the analysis and design of workflows and processes within and between organizations. Business activities should be viewed as more than a collection of individual or even functional tasks; they should be broken down into processes that can be designed for maximum effectiveness, in both manufacturing and service environment. BPR provides a unique way of customizing ERP [6]. If done correctly; it would produce an increase in performance through the use of information technology.

Understanding organizational processes [39] has written about the importance of systems thinking in understanding workflow, business processes, and the impact of feedback. In any system, events will occur that have an effect elsewhere in the system, and possibly on the event itself. In order to have a full understanding of the effects of what is being done, it is necessary to understand the whole process and how it fits into the organizational system.

Several authors have provided their own interpretation of the changes being applied to organizations, for example [35] have described BPR as the analysis and design of work flows and processes within and between organizations. [38] have promoted the fundamental rethinking and radical redesign of business processes to achieve dramatic improvements in critical, contemporary measures of performance, such as cost, quality, service, and speed. In the research of [40] BPR was considered as a critical step of the ERP implementation.

What is clear from the review presented is that BPR must be seen as a strategic, cross-functional activity that needs to be integrated with other aspects of management if it is to deliver benefits for the organization. The key requirement is that managers understand in detail the current business processes before embarking on a BPR project. The application of IT can provide major improvements in the performance of business systems, and while considered a major part of the reengineering activity, must be integrated with the needs of all stakeholders.

The fit between business processes and ERP systems and among business processes is believed to be critical to the success of ERP implementation [41], [42]. They found a positive correlation between the initial organizational fit and implementation success. However, for most organizations, such a fit can only be achieved through mutual adaptation of the ERP systems and organization processes. The adaptation of the ERP systems involves the customization of the ERP system to fit existing or reengineered business processes. Davenport [43] identified ERP system customization as module selection, table configuration, and code modification.

2.1.12. Literature Gaps

Some researchers found that current literature does not provide a complete view on identifying, realizing and assessing ERP benefits. They observe that those authors, who identify benefits, do not give guidelines for benefit realization and assessment. Those authors, who discuss benefit realization and assessment, do not discuss the identification of benefits. Most of the literature focused on benefit identification defines a number of benefit categories, but there are huge differences in the amount and level of detail provided by the authors. This shows that very little research has been done on benefit identification, realization and assessment in cross-organizational ERP projects.

In order to create a framework that is applicable for cross-organizational collaborations, they decided to extend benefit framework with benefits identified by literature in logistics and organizational theory which generally focus on inter-company cooperation's. They believe that in the future, it might make sense to extend the literature review by including publications on inter-organizational systems that have an ERP system as their backbone. Their future research will include cross-organizational ERP case studies to collect more specific data and insights into this field. They also indicated a lack of guidelines that can be used to identify, realize and assess

benefits. Researchers such as [44] develop conceptual frameworks, which include ERP benefits, and then provide guidelines on how to use their models specifically for ERP.

Reviewing these frameworks and guidelines shows that most authors do not focus on benefits but assume that benefits are clear and that their identification, realization and assessment do not need to be discussed.

A chapter was dedicated to the most common functionality of ERPs nowadays and their classification. The main advantages and disadvantages from different authors were summarized and an insight view of the implementation of ERP was mentioned together with comprehensive list of critical failure factors. ERP implementations in particular are projects with high risk, which require appropriate management. Organizations planning to implement ERP must learn how to identify the critical issues that affect the implementation process and know when in the process to address them effectively to ensure that the promised benefits can be realized and potential failures can be avoided.

Regarding researches on ERP system implementation in Ethiopian context, some studies are conducted by [45]. They tried to assess Ms-Dynamics ERP implementation in a private company which has less market share and it is not well known and deployed as SAP and Oracle.

The other Ethiopian author [46] has conducted a study on Oracle ERP system at Ethio-Telecom, a government company. He has tried to list critical success factors along pre-implementation, implementation and post-implementation phases of Oracle ERP. The researcher did not get literature review concerning city administrations finance and economic development office.

CHAPTER THREE

3. RESEARCH METHODOLOGY

This chapter presents about the research design, sampling procedure, procedures for data collection, in order to develop methodology to address research questions. This research was conducted to figure out challenges of the existing system which is called Integrated Budget and Expenditure System (IBEX) in the First level city administration's finance and economic development offices (FLCAFEDO). By identifying the challenges and limitations of the IBEX system, the goal is to recommend a better solution (design framework) that overcomes existing problems -one that is based on the implementation of ERP. Towards achieving the main objective; methods, processes and techniques used to conduct a research study are followed as follow:

3.1. RESEARCH DESIGN

The general objective of this research is to design a framework for ERP implementation for FLCAFEDO's. The purpose of this research is to provide a high level conceptual framework that will assist in understanding what ERP is and to convince how to go further about implementing ERP. Since descriptive researches are those studies which are concerned with describing the characteristics of a particular individual, or of group and it includes surveys and fact-findings enquire of different kinds ([47] to convince the managers of FLCAFEDO descriptive type of research is better and to collect a raw data the researcher used purposive sampling, which is also referred to as judgment, selective or subjective sampling or a non-probability sampling method. Purposive sampling is characterized by a deliberate effort to gain representative samples by including groups or typical areas in a sample.

Due to the nature of the research and to achieve the specific and general objectives of the study, a mixed quantitative and qualitative method used to analyze the collected data. The use of both approaches is tandem so that the overall strength of the study is greater than either qualitative or quantitative research [48]. Thus, this design is selected to express the current phenomenon of IBEX system and gives prediction using ERP framework design depending on the finding of the research and to describe the basic questions stated in the research. This research study was an academic research, which had to be completed with limited available resources: both time and money. Therefore, Survey strategy used to collect data using a

questionnaire and semi-structured interview from a sample population in a highly restricted or economical way.

3.2. SOURCES OF DATA

For this study two types of data sources were used. These are: primary and secondary sources of data. Primary data was obtained from frontline employees through conducting interview and questionnaire and also from ICT experts of those offices through observation in addition to conducting interview and questionnaire. The questionnaire includes both open and close questions. According to [49], this instrument of data collection is quite popular whereas secondary data was collected from monthly reports, quarterly report yearly reports, auditor report, internet and abstracts of first level city administration's finance and economic development offices.

3.2.1. Methods of Data Collection

The methods used to achieve the objectives of the research are:

- Survey Questionnaire.
- Observe to the offices and gather all the available data and conduct interviews.
- Proper consultation was conducted with concerned expertise.

3.2.1.1. Survey Questionnaire

Survey questionnaire is a primary data source used for this research. Harris and Brown [50] have explained that structured survey questionnaires and semi-structured interviews are often used in studies to generate confirmatory results.

3.2.1.1.1. Sample Design and Size

There are different types of sample designs based on two factors which are the representation basis and the element selection technique. On the representation basis, the sample may be probability or it may be non-probability sampling. Probability sampling is based on the concept of random selection, where as non-probability sampling is 'non-random' sampling. On element selection basis, the sample may be either unrestricted or restricted.

When each sample element is drawn individually from the population at large, then the sample so drawn is known as ‘unrestricted sample’, whereas all other forms of sampling are covered under the term ‘restricted sampling’.

Non-probability sampling: is that sampling procedure which does not afford any basis for estimating the probability that each item in the population has of being included in the sample. Non-probability sampling is also known by different names such as deliberate sampling, purposive sampling and judgment sampling. In this type of sampling, items for the sample are selected deliberately by the researcher; his choice concerning the items remains supreme. In such a design, personal element has a great chance of entering into the selection of the sample.

In non-probability sampling, error cannot be estimated and the element of bias, great or small, is always there. As such this sampling design is rarely adopted in large inquiries of importance. However, in small inquiries and researches by individuals, this design may be adopted because of the relative advantage of time and money inherent in this method of sampling. Therefore, based on the concept of non-probability sampling and FLCAFEDO’s structure the researcher selected non-probability sampling for each office of first level city administration’s finance and economic development office in Oromia region. These first level city administration finance and economic development offices in Oromia region are Adama city administration finance and economic development office, Bushoftu city administration finance and economic development office, Shashemene city administration finance and economic development office, Sebata city administration finance and economic development office, Burayu city administration finance and economic development office and Jimma city administration finance and economic development office.

There are five main departments in FLCAFEDO’s which are financing, budget and planning, purchasing, auditing and human resource management. Among those departments financing and budget and planning are the two departments which IBEX system is deployed and currently working by IBEX (see Appendix IV). Employees of both departments (financing department and budget and planning department) are more related to ICT than other departments; that is why the researcher chose purposive sampling method and selected two departments from those five main departments.

Questionnaire distribution and response rate of each first level city administration's finance and economic offices are as follow: -

Table 3.1. Questionnaire distribution and response rate of Adama and Bishoftu city finance and economic development office

Strata/Division	Adama city administration			Bishoftu city administration		
	Total Population	Distributed	Collected	Total Population	Distributed	Collected
Financing	22	3	3	22	4	4
Budget and planning	6	2	2	6	1	1
Total	28	5	5	28	5	5

Table 3.2 Questionnaire distribution and response rate of Shashemene and Sebeta city finance and economic development office.

Strata/Division	Shashemene city administration			Sebeta city administration		
	Total Population	Distributed	Collected	Total Population	Distributed	Collected
Financing	22	4	4	22	3	3
Budget and planning	6	1	1	6	2	2
Total	28	5	5	28	5	5

Table 3.3 Questionnaire distribution and response rate of Burayu & Jimma city finance and economic development offices.

Strata/Division	Burayu city administration			Jimma city administration		
	Total Population	Distributed	Collected	Total Population	Distributed	Collected
Financing	22	4	4	22	3	3
Budget and planning	6	1	1	6	2	2
Total	28	5	5	28	5	5

Total number of permanent employees in each first level city administration's finance and economic development offices are 78 and among these 6 are employees of budget and planning department, 22 employees are assigned to financing department and the rest are assigned to other three departments which are purchasing department, audit department, and human resource management. As a result, from each first level city administration's finance and economic development offices 5 employees were taken as a population. Since the scope of this study is to first level city administration's finance and economic development offices of Oromia region which are six in number (5*6) totally 30 employees were selected from those two departments (financing department and budget and planning department) as a population for this study.

3.2.1.2. Interviews

Visit to the offices and gather all the available data and conduct interviews to know more about the existing system and feel the interest of the employees and customers concerning using ERP.

The purposes of the interview are: -

First, the questionnaire result is used as one input data to design ERP framework for FLCAFEDOOR. Secondly, the questionnaire is a way of assessing drawbacks of IBEX and creating awareness for employees of First level city administration's finance and economic development offices in Oromia region on Enterprise Resource Planning. The researcher also made recorded interview with selected employee of First level city administration's finance and economic development offices in Oromia region.

3.3. DATA PRESENTATION AND ANALYSIS

The collected data are clearly presented by using tables and charts which have been expressed in the form of frequency and percentage. Then, descriptive analysis technique has been applied to manipulate the organized data. Summarized interview result also explained.

3.3.1. Validity

According to [49], validity is the most critical criterion and indicates the degree to which an instrument measures what it is supposed to measure. Validity can also be thought of as utility. In other words, validity is the extent to which differences found with a measuring instrument reflect true differences among those being tested. As stated above, questionnaire and interview were used to collect the primary data (see Appendix I&II) to design ERP framework. Then, the researcher use East shoa Finance and economic development office's ICT experts by conducting survey questionnaire (see Appendix III) to evaluate after the ERP framework was designed. Therefore, to assure validity of the questionnaires the researcher gave a chance for professionals on the area to review the questionnaires used to collect primary data, to interview and to evaluate and finally validated by the advisor.

CHAPTER FOUR

4. DATA PRESENTATION AND ANALYSIS

This chapter presents the results of the study and interpretation of the findings. The chapter comprised of two sections. The first part presents the profile of respondents showing gender, age group, level of education, work experience, and position of respondents using bar chart and table. The second section presents analysis of the study variables by using tables consisting numbers and percentages. And it has also contained the discussion of result of overall responses.

4.1. DEMOGRAPHIC INFORMATION OF THE RESPONDENTS

Respondent's demographic information of each first level city administration's finance and economic development offices in Oromia region are as follow: -

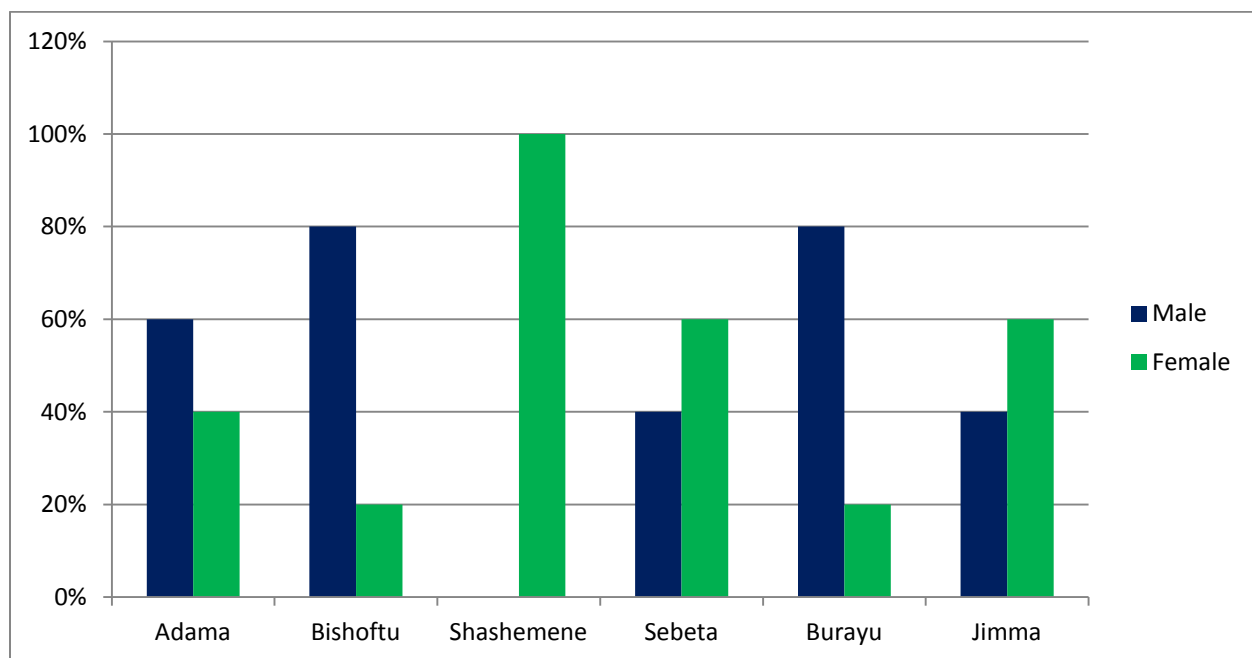


Chart 1.1. Gender of each First level city administration finance and economic development office's respondents

Gender proportion of employee category based on the collected data, the overall staffing composition of the Adama city finance and economic development office is dominated by male employees, especially when it comes to the financing department. The proportion of female employees are law and its counted as 40% of the total employee of the Adama city finance and economic development office and the remaining 60% is covered by male employees.

Therefore, from the investigated fact, the researcher deduces that the general sex composition is dominated by male employees.

Bishoftu city finance and economic development office employee's category based on the collected data, the overall staffing composition is dominated by male employees, especially when it comes to the budget and planning department. The proportion of female employees are very low and its counted as 20% of the selected employee and the remaining 80% is covered by male employees. Therefore, from the investigated fact, the researcher deduces that the general sex composition is dominated by male employees.

Gender proportion of employee category based on the collected data, the overall staffing composition of the Shashemene city finance and economic development office is completely dominated by female employees, in both budget and planning and financing departments. The proportion of female employees is very high and its counted as 100% of the total selected.

Employees' category of Sebeta city finance and economic development office based on the collected data, the overall staffing composition is dominated by female employees, especially when it comes to the financing department. The proportion of male employees are low and its counted as 40% of the total employees and the remaining 60% is covered by female employees. Therefore, from the investigated fact, the researcher deduces that the general sex composition is dominated by female employees.

Gender proportion of employee category based on the collected data, the overall staffing composition of the Burayu city finance and economic development office is dominated by male employees, especially when it comes to the financing department. The proportion of female employees' very low and its counted as 20% of the total employees and the remaining 80% is covered by male employees. Therefore, from the investigated fact, the researcher deduces that the general sex composition is dominated by male employee whereas 40% of the total employee of the Jimma city finance and economic development office are male and the remaining 60% is covered by female employees. Therefore, from the investigated fact, the researcher deduces that the general sex composition is dominated by female employees.

Table 4.1:Demographic information of Adama, Bishoftu & Shashemene city finance and economic development offices.

Demographic Information	Classification	Adama		Bishoftu		Shashemene	
		Frequency	%	Frequency	%	Frequency	%
Age	Below 25 years	0	0%	0	0%	0	0%
	26-30 years	2	40%	2	40%	1	20%
	31-35 years	1	20%	2	40%	1	20%
	36-40 years	0	0%	1	20%	3	60%
	41-45 years	0	0%	0	0%	0	0%
	above 45 years	2	40%	0	0%	0	0%
	Total	5	100%	5	100%	5	100%
Educational Background	Completed high school	0	0%	0	0%	0	0%
	Certificate/ Diploma	0	0%	0	0%	2	40%
	College/University degree	5	100%	5	100%	3	60%
	Master's or doctorate degree	0	0%	0	0%	0	0%
	Total	5	100%	5	100%	5	100%
Work Unit/ Department	Financing	2	40%	3	60%	3	60%
	Budget and planning	3	60%	2	40%	2	40%
	Total	5	100%	5	100%	5	100%

Concerning age status, 40% of the employees are between the age 26 and 35, and the other 40% are between 36 and 40. Furthermore, 20 % of the employees are between 31 and 35. This indicates that Adama city finance and economic development office is staffed with young and energetic employees. In other words, most of the employees are belonging in the productive age group. Regarding educational level of employees of the targeted group which means financing and budget and planning departments of Adama city finance and economic development office,

100% of the employees are first degree holders. Therefore, all of the employees have a first degree and we can say that human resource profile of the office in terms of educational background is in an excellent status.

As it is already explained in the research design and methodology part, the researcher has focused on two departments considering ERP framework design, and these departments are considered as strata. Accordingly, out of the 5 employees who returned the questionnaire, 60% of the respondents belong to budget and planning and the rest 40% respondents are from financing department. By this we can infer that the response rate of budget and planning department higher than the financing department

Bishoftu city finance and economic development office's employee age status is as follow, 40% of the employees are between the age 26 and 30, and the other 40% are between 36 and 40 whereas 20 % of the employees are between 41-45. This indicates that Bishoftu city finance and economic development office is staffed with almost half of the targeted group are young and energetic employees, and 20% of them are between 41-45 years old. In other words, 80% of the employees are belonging in the productive age group. Regarding educational level of employees of the targeted group of the office, 100% of the employees are first degree holders. Therefore, all of the employees have a first degree and we can say that human resource profile of the office in terms of educational background is in an excellent status.

As it is already explained in the research design and methodology part, the researcher has focused on two departments considering ERP framework design, and these departments are considered as strata. Accordingly, out of the 5 employees who returned the questionnaire, 60% of the respondents belong to budget and planning and the rest 40% respondents are from financing department. By this we can infer that the response rate of budget and planning department higher than the financing department

Concerning age status of Shashemene city finance and economic development office's employees, 60% of them are between the age 36 and 40, and the other 20% are between 26 and 30 whereas 20 % of the employees are between 31-35. This indicates that the office is staffed with young and energetic employees. In other words, most of the employees are belonging in the productive age group. Regarding educational level of employees of the targeted group 60% of

the employees are first degree holders whereas 40% of the employees are Certificate/Diploma holders. Therefore, most of the employees have a first degree and we can say that human resource profile of the office in terms of educational background is in good status.

As it is already explained in the research design and methodology part, the researcher has focused on two departments considering ERP framework design, and these departments are considered as strata. Out of the 5 employees who returned the questionnaire, 80% of the respondents are belongs to financing department whereas the remaining 20% of the respondents belongs to budget and planning department. By this we can infer that the response rate of financing department higher than the budget and planning department.

Table 4.2.Demographic information of Sebeta, Burayu and Jimma city finance and economic development offices

Demographic Information	Classification	Sebeta		Burayu		Jimma	
		Frequency	%	Frequency	%	Frequency	%
Age	Below 25 years	1	20%	1	20%	0	0%
	26-30 years	2	40%	2	40%	2	40%
	31-35 years	1	20%	0	0%	0	0%
	36-40 years	1	20%	1	20%	1	20%
	41-45 years		0%	1	20%	2	40%
	above 45 years	0	0%	0	0%		0%
	Total	5	100%	5	100%	5	100%
Educational Background	Completed high school	0	0%	0	0%	0	0%
	Certificate/ Diploma	2	40%	3	60%	2	40%
	College/University degree	3	60%	2	40%	3	60%
	Master's or doctorate degree	0	0%	0	0%	0	0%
	Total	5	100%	5	100%	5	100%
Work Unit/ Department	Financing	3	60%	3	60%	3	60%
	Budget and planning	2	40%	2	40%	2	40%
	Total	5	100%	5	100%	5	100%

Concerning age status, 40% of the employees are between the age 26 and 30, and the other 20% are between 36 and 40. Furthermore, 20 % of the employees are between 31-35, and 20% of the employees are below 25 years old. This indicates that Sebeta city finance and economic development office is staffed with young and energetic employees. In other words, most of the employees are belonging in the productive age group.

Regarding educational level of employees of the targeted group which means financing and budget and planning departments of Sebeta city finance and economic development office, 60% of the employees are first degree holders whereas 40% of the employees are Certificate/Diploma holders. Therefore, most of the employees have a first degree and we can say that human resource profile of Sebeta city finance and economic development office in terms of educational background is in very good status.

As it is already explained in the research design and methodology part, the researcher has focused on two departments considering ERP framework design, and these departments are considered as strata. Accordingly, out of the 5 employees who returned the questionnaire, 60% of the respondents are belongs to financing department whereas the remaining 40% belongs to budget and planning department. By this we can infer that the response rate of financing department was higher than the budget and planning department.

In case of Burayu city finance and economic development office's age status, 40% of the employees are between the age 26 and 30, 20% are between 36 and 40 and the other 20% are between 41-45 whereas 20 % of the employees are below 25 years old. This indicates that Burayu city finance and economic development office is staffed with almost young and energetic employees and with some old employees. In other words, most of the employees are belonging in the productive age group with some non-productive age group. Regarding educational level of employees of the targeted group which means financing and budget and planning departments of the office, 60% of the employees are Certificate/Diploma holders whereas, 40% of the employees are first degree holders. Therefore, most of the employees have Certificate/ Diploma with some first degree holders and we can say that human resource profile of the office in terms of educational background is in good status for performing the mentioned office activities.

As it is already explained in the research design and methodology part, the researcher has focused on two departments considering ERP framework design, and these departments are considered as strata. Out of the 5 employees who returned the questionnaire, 80% of the respondents are belongs to financing departments whereas the remaining 20% of the respondents are belongs to budget and planning department. By this we can infer that the response rate of financing department is higher the budget and planning department.

Lastly but not leastly Jimma city finance and economic development office's age status is 40% of the employees are between the age 26 and 30, 20% are between 36 and 40 and the other 40% are between 41-45. This indicates that Jimma city finance and economic development office is staffed with more old and with some young employees. In other words, some of the employees are belonging in the productive age group.

As other first level city administration's finance and economic development office in Oromia; regarding educational level of employees of the targeted group of the office, 60% of the employees are first degree holders whereas, 40% of the employees are Certificate/Diploma holders. Therefore, most of the employees have first degree with some Certificate/Diploma holders and we can say that human resource profile of the office in terms of educational background is in a good status.

As it is already explained in the research design and methodology part, the researcher has focused on two departments considering ERP framework design, and these departments are considered as strata. Accordingly, out of the 5 employees who returned the questionnaire, 60% of the respondents are belongs to financing departments whereas the remaining 40% belongs to budget and planning department. By this we can infer that the response rate of financing department was higher than the budget and planning department.

4.2. SURVEY DATA RESULTS

Based on the result of survey questionnaire (see appendix V) the researcher analyses the collected data as follow:

For the question which asked selected employees whether the IBEX is implemented or not in their office; all the First level city administration's finance and economic development offices in Oromia region replied that IBEX is implemented in their office. Among many departments in each offices of FLCAFEDOOR; the targeted groups are employees of financing and budget and planning departments which are initiated the implementation of IBEX in their offices; 60% of respondents of Adama city finance and economic development office, 80% of respondents of Bishoftu city finance and economic development office, 80% of respondents of Shashemene city finance and economic development office, 60% of respondents of Sebeta city finance and economic development office, 80% of respondents of Burayu city finance and economic development office, 60% of respondents of Jimma city finance and economic development office

are financing departments while 40% of respondents of Adama city finance and economic development office, 20% of respondents of Bishoftu city finance and economic development office, 20% of respondents of Shashemene city finance and economic development office, 40% of respondents of Sebeta city finance and economic development office, 20% of respondents of Burayu city finance and economic development office and 40% of respondents of Jimma city finance and economic development office are budget and planning departments. From this we can deduce that each First level city administrations in Oromia region have more financing department than budget and planning. Therefore, we can say that most financing with some budget and planning initiated IBEX application to their own office.

Concerning training to operate IBEX (100% of respondents of Adama, 60% of Bishoftu, 60% of Shashemene, 80% of Sebeta, 80% of Burayu and 60% of Jimma) city finance and economic development office have been received IBEX training whereas (40% of respondents of Bishoftu, 40% of Shashemene, 20% of Sebeta, 20% of Burayu and 40% of Jimma) city finance and economic development office did not receive IBEX training. From this we can deduce that most of the employee took IBEX training especially Adama city finance and economic development office whereas some employees operating IBEX without having formal IBEX training.

Among respondents who have got IBEX training (80% of respondents of Adama, 67% of Bishoftu, 33% of Shashemene, 75% of Sebeta, 50% of Burayu and 100% of Jimma) city finance and economic development office have been received basic IBEX training whereas 20% of Adama, 67% of Shashemene, 25% of Sebeta, 50% of Burayu) city finance and economic development office got advanced IBEX training and 33% of Bishoftu city finance and economic development office did not response which type of training they got.

Concerning customization of employees to the IBEX system (20% of respondents of Adama, 60% of Bishoftu, 60% of Shashemene, 20% of Sebeta, 20% of Burayu and 60% of respondents of Jimma) city finance and economic development office replies that IBEX made minimum changes on their offices whereas (60% of respondents of Adama, 40% of Bishoftu, 40% of Shashemene, 60% of Sebeta, 60% of Burayu and 40% of Jimma) city finance and economic development office made significant change. Furthermore, on (20% of respondents of Adama, 20% of Sebeta and 20% of Burayu) city finance and economic development office made very little change.

Regarding in need of ERP implementation in their office (100% of respondents of Adama ,100% of respondents of Bishoftu, 80% of Shashemene, 100% of Sebeta, 80% of Burayu and 80% of Jimma) city finance and economic development office agree and (20% of respondents of Shashemene, 20% of Burayu and 20% of Jimma) city finance and economic development office have neutral idea.

Evaluation of existing IBEX system in first level city administration in terms of the following points as follow:

In case of internal efficiency of existing IBEX system (80% of respondents of Adama ,80% of Bishoftu, 20% of Shashemene, 40% of Sebeta, 40% of Burayu and 60% of Jimma) city finance and economic development office are satisfied. Furthermore (40% of respondents of Shashemene, 60% of Sebeta, 40% of Burayu and 40% of Jimma) city finance and economic development office are moderately satisfied whereas (20% of respondents of Adama ,20% of Bishoftu, 40% of Shashemene, 20% of Burayu) city finance and economic development office are dissatisfied.

In case of customer satisfaction of existing IBEX system (80% of respondents of Adama ,80% of Bishoftu, 80% of Shashemene, 40% of Sebeta, 40% of Burayu and 60% of Jimma) city finance and economic development office are satisfied. Furthermore (20% of respondents of Adama ,20% of Bishoftu, 40% of Sebeta, 40% of Burayu and 40% of Jimma) city finance and economic development office are moderately satisfied whereas (20% of respondents of Shashemene, 20% of Sebeta and 20% of Burayu) city finance and economic development office are dissatisfied.

In case of timely report (80% of respondents of Adama ,80% of Bishoftu, 40% of Shashemene, 40% of Sebeta, 40% of Burayu and 80% of Jimma) city finance and economic development office are satisfied whereas (20% of respondents of Adama ,20% of Bishoftu, 60% of Shashemene, 60% of Sebeta, 60% of Burayu and 20% of Jimma) city finance and economic development office are dissatisfied.

In case of data management (80% of respondents of Adama ,80% of Bishoftu, 40% of Shashemene, 20% of Sebeta, 60% of Burayu and 60% of Jimma) city finance and economic development office are satisfied. Furthermore (20% of respondents of Adama, 20% of Shashemene and 40% of Sebeta) city finance and economic development office are moderately

satisfied whereas (20% of respondents of Bishoftu, 40% of Shashemene, 40% of Sebeta, 60% of Burayu and 40% of Jimma) city finance and economic development office are dissatisfied.

IBEX in terms of integration among departments (60% of respondents of Adama ,60% of Bishoftu, 20% of Shashemene, 20% of Sebeta, 40% of Burayu and 20% of Jimma) city finance and economic development office are satisfied. Furthermore (20% of respondents of Adama ,20% of Bishoftu and 40% of Sebeta) city finance and economic development office are somewhat satisfied whereas (20% of respondents of Adama ,20% of Bishoftu, 80% of Shashemene, 40% of Sebeta, 60% of Burayu and 80% of Jimma) city finance and economic development office are dissatisfied.

In terms of Data importing and exporting (60% of respondents of Adama ,60% of Bishoftu, 40% of Shashemene, 40% of Sebeta, 40% of Burayu and 60% of Jimma) city finance and economic development office are satisfied. Furthermore (20% of respondents of Adama ,20% of Bishoftu 40% of Shashemene ,20% of Sebeta, 20% of Burayu and 20% of Jimma) city finance and economic development office are somewhat satisfied whereas (20% of respondents of Adama ,20% of Bishoftu, 20% of Shashemene, 40% of Sebeta, 40% of Burayu and 20% of Jimma) city finance and economic development office are dissatisfied.

Capability of Data backup and restore (80% of respondents of Adama ,40% of Bishoftu, 40% of Shashemene, 40% of Sebeta, 40% of Burayu and 60% of Jimma) city finance and economic development office are satisfied. Furthermore (20% of respondents of Adama ,60% of Bishoftu 40% of Shashemene ,60% of Sebeta and 60% of Burayu) city finance and economic development office are somewhat satisfied whereas (20% of respondents of Shashemene and 40% of Jimma) city finance and economic development office are dissatisfied.

Error detection (80% of respondents of Adama ,60% of Bishoftu, 20% of Shashemene, 60% of Sebeta, 40% of Burayu and 20% of Jimma) city finance and economic development office are satisfied whereas (20% of respondents of Adama ,40% of Bishoftu 80% of Shashemene ,40% of Sebeta, 60% of Burayu and 60% of Jimma) city finance and economic development office are somewhat satisfied. From this we deduce no one dissatisfied concerning error detection of IBEX system.

Flexibility to edit transaction after once posted IBEX in terms of integration among departments (40% of respondents of Adama ,60% of Bishoftu, 20% of Shashemene, 20% of Sebeta, 40% of Burayu and 40% of Jimma) city finance and economic development office are satisfied. Furthermore (20% of respondents of Adama ,20% of Bishoftu and 20% of Jimma) city finance and economic development office are somewhat satisfied whereas (40% of respondents of Adama ,40% of Bishoftu, 80% of Shashemene, 80% of Sebeta, 60% of Burayu and 40% of Jimma) city finance and economic development office are dissatisfied.

Maintainability after once failed (60% of respondents of Adama ,40% of Bishoftu, 20% of Sebeta, 20% of Burayu and 60% of Jimma) city finance and economic development office are satisfied. Furthermore (20% of respondents of Adama ,20% of Bishoftu and 20% of Burayu) city finance and economic development office are somewhat satisfied whereas (20% of respondents of Adama ,40% of Bishoftu, 100% of Shashemene, 80% of Sebeta, 60% of Burayu and 40% of Jimma) city finance and economic development office are dissatisfied.

Effectiveness of IBEX (80% of respondents of Adama ,80% of Bishoftu, 20% of Sebeta, 40% of Burayu and 60% of Jimma) city finance and economic development office are satisfied. Furthermore (20% of Adama ,20% of Bishoftu 60% of Shashemene ,60% of Sebeta, 40% of Burayu and 40% of Jimma) city finance and economic development office are somewhat satisfied whereas (40% of respondents of Shashemene, 20% of Sebeta and 20% of Burayu) city finance and economic development office are dissatisfied.

Accuracy of IBEX (80% of respondents of Adama ,80% of Bishoftu,40% of Sebeta, 40% of Burayu and 60% of Jimma) city finance and economic development office are satisfied. Furthermore (20% of respondents of Bishoftu, 60% of Shashemene ,40% of Sebeta, 40% of Burayu and 40% of Jimma) city finance and economic development office are somewhat satisfied whereas (20% of respondents of Adama, 40% of Shashemene, 20% of Sebeta and 20% of Burayu) city finance and economic development office are dissatisfied.

Coverage of IBEX to all charts of account (80% of respondents of Adama ,80% of Bishoftu, 80% of Shashemene, 40% of Sebeta, 40% of Burayu and 80% of Jimma) city finance and economic development office confirm that IBEX covers all charts of accounts whereas (20% of respondents of Adama ,20% of Bishoftu, 20% of Shashemene, 60% of Sebeta, 60% of Burayu

and 20% of Jimma) city finance and economic development office replies that IBEX did not include all charts of accounts.

Concerning support of regional working language Oromiffa (40% of respondents of Adama ,40% of Bishoftu, 60% of Shashemene, 40% of Sebeta, 40% of Burayu and 40% of Jimma) city finance and economic development office replies that IBEX support regional language oromiffa whereas (60% of respondents of Adama ,60% of Bishoftu, 40% of Shashemene, 60% of Sebeta, 60% of Burayu and 60% of Jimma) city finance and economic development office confirm that IBEX did not support regional language oromiffa as required.

Easiness to register transaction (80% of respondents of Adama ,60% of Bishoftu, 80% of Shashemene, 80% of Sebeta, 80% of Burayu and 60% of Jimma) city finance and economic development office are replies that IBEX is easy to register transaction whereas (20% of respondents of Adama ,40% of Bishoftu, 20% of Shashemene, 20% of Sebeta, 20% of Burayu and 40% of Jimma) city finance and economic development office confirm that IBEX is not familiar to register transaction. Respondents who replies that as IBEX is not easy to register (100% of respondents of Adama ,50% of Bishoftu, 100% of Shashemene, and 100% of Jimma) city finance and economic development office of them explain frequency of IBEX problem as sometimes, 100% of respondents of Sebeta city finance and economic development office as frequently whereas 50% of respondents of Bishoftu and 100% of Burayu reply that IBEX problem happen a few times.

Concerning identification of IBEX problem (20% of respondents of Adama ,40% of Bishoftu, 20% of Shashemene, 40% of Sebeta and 60% of Jimma) city finance and economic development office identifies IBEX problem by end user, (80% of respondents of Adama,40% of Bishoftu, 60% of Shashemene, 40% of Sebeta, 100% of Burayu and 40% of Jimma) city finance and economic development office identified by support team whereas (20% of respondents of Bishoftu, 20% of Shashemene and 20% of Sebeta) city finance and economic development office replies other i.e employees who feed data to IBEX application.

Improvements of working process by using IBEX (80% of respondents of Adama ,60% of Bishoftu, 20% of Shashemene, 20% of Sebeta, 20% of Burayu and 60% of Jimma) city finance and economic development office replies that using IBEX improves work process to a great

extent, (20% of respondents of Bishoftu, 20% of Shashemene, 40% of Sebeta and 20% of Jimma) city finance and economic development office to somewhat, (20% of respondents of Adama ,20% of Bishoftu, 60% of Shashemene, 40% of Sebeta, 60% of Burayu and 20% of Jimma) city finance and economic development office improves very little whereas 20% of respondents of Burayu city finance and economic development office replies that IBEX did not improve their working process at all.

Integration among departments throughout the office (20% of respondents of Bishoftu, 20% of Shashemene and 20% of Burayu) city finance and economic development office replies that IBEX integrates departments whereas (100% of respondents of Adama ,80% of Bishoftu, 80% of Shashemene, 100% of Sebeta, 80% of Burayu and 100% of Jimma) city finance and economic development office confirms IBEX does not integrate all departments. Departments which are out of integration (60% of respondents of Adama ,50% of Bishoftu and 75% of Shashemene) city finance and economic development office are replies that financing department left, (40% of respondents of Adama ,50% of Bishoftu, 25% of Shashemene) city finance and economic development office are replies that budget and planning department left,(40% of respondents of Sebeta, 50% of Burayu and 40% of Jimma) city finance and economic development office confirms that purchasing department is left,(40% of respondents of Sebeta, 25% of Burayu and 40% of Jimma) city finance and economic development office confirms that auditing department is left whereas (20% of respondents of Sebeta, 25% of Burayu and 20% of Jimma) city finance and economic development office confirms that human resource management department is left.

Concerning data store (80% of respondents of Adama ,40% of Bishoftu, 100% of Shashemene, 60% of Sebeta, 60% of Burayu and 40% of Jimma) city finance and economic development office store their data on database, (20% of respondents of Bishoftu, 20% of Sebeta, 20% of Burayu and 40% of Jimma) city finance and economic development office store their data on file cabinet whereas (20% of respondents of Adama ,40% of Bishoftu, 20% of Sebeta, 20% of Burayu and 20% of Jimma) city finance and economic development office store their data on computer files and directories.

Motivation of IBEX implementation (40% of respondents of Adama ,40% of Bishoftu, 60% of Shashemene, 40% of Sebeta, 40% of Burayu and 20% of Jimma) city finance and economic development office is technical, 40% of respondents of Jimma city finance and economic

development office is strategic, (20% of respondents of Adama ,20% of Bishoftu, 20% of Sebeta, 20% of Burayu and 40% of Jimma) city finance and economic development office is functional whereas (40% of respondents of Adama ,40% of Bishoftu, 40% of Shashemene, 40% of Sebeta, 40% of Burayu and 40% of Jimma) city finance and economic development office is cost saving and financial.

Exchange report among departments (60% of respondents of Adama ,80% of Bishoftu, 40% of Shashemene, 20% of Sebeta, 60% of Burayu and 60% of Jimma) city finance and economic development office replies as they got report from other departments easily whereas (40% of respondents of Adama ,20% of Bishoftu, 60% of Shashemene, 80% of Sebeta, 40% of Burayu and 40% of Jimma) city finance and economic development office cannot get report from other departments. Based on exchange of report respondents who reply as they got report easily from other departments (67% of respondents of Adama ,100% of Bishoftu, 50% of Shashemene, 100% of Sebeta, 67% of Burayu and 33% of Jimma) city finance and economic development office they are financing departments whereas (33% of respondents of Adama, 50% of Shashemene, 33% of Burayu and 67% of Jimma) city finance and economic development office are budget and planning.

Among departments (40% of respondents of Adama ,60% of Bishoftu, 40% of Shashemene, 60% of Sebeta, 40% of Burayu and 40% of Jimma) city finance and economic development office share their data/information to financing department, (40% of respondents of Adama ,40% of Bishoftu, 40% of Shashemene, 40% of Sebeta and 40% of Burayu) city finance and economic development office share their data/information to budget and planning department, 40% of respondents of Jimma city finance and economic development office share their data/information to purchasing whereas (20% of respondents of Adama , 20% of Shashemene, 20% of Burayu and 20% of Jimma) city finance and economic development office share their data/information to auditing.

Concerning benefits of IBEX system (60% of respondents of Adama ,80% of Bishoftu, 60% of Shashemene, 60% of Sebeta, 60% of Burayu and 40% of Jimma) city finance and economic development office led to supplier and customer satisfaction, 20% of respondents of Adama city finance and economic development office increase overall productivity whereas (20% of

respondents of Adama ,20% of Bishoftu, 40% of Shashemene, 40% of Sebeta, 40% of Burayu and 60% of Jimma) city finance and economic development office reduce inventory level

Managerial problems because of IBEX implementation (20% of respondents of Bishoftu, 20% of Shashemene, 60% of Sebeta, 60% of Burayu and 40% of Jimma) city finance and economic development office made employee resistance to customize with IBEX, (20% of respondents of Adama ,40% of Bishoftu and 20% of Jimma) city finance and economic development office made internal conflict, 20% of respondents of Bishoftu replies cost overrun,(20% of respondents of Adama,40% of Shashemene, 40% of Sebeta, 40% of Burayu and 40% of Jimma) city finance and economic development office made conflict with consultants whereas (60% of respondents of Adama ,20% of Bishoftu, 40% of Shashemene) replied as no problem at all.

Technical problems happen after IBEX implementation (60% of respondents of Adama ,40% of Bishoftu, 60% of Shashemene, 40% of Burayu and 60% of Jimma) city finance and economic development office data migration problem,(20% of respondents of Bishoftu, 20% of Sebeta and 20% of Jimma) city finance and economic development office security problem whereas (40% of respondents of Adama ,40% of Bishoftu, 40% of Shashemene, 80% of Sebeta ,60% of Burayu and 20% of Jimma) city finance and economic development office customization problem.

Finally, all First level city administration finance and economic development offices which are Adama city finance and economic development office, Bishoftu city finance and economic development office, Shashemene city finance and economic development office, Sebeta city finance and economic development office, Burayu city finance and economic development office and Jimma city finance and economic development office are not used or know ERP.

The researcher analyses the respondent's idea concerning open questions of each FLCAFEDOOR as follow:

Concerning benefits if all departments of first level city administration finance and economic development office in Oromia region becomes integrated using computerized system/ERP; respondents of Adama city finance and economic development office replies that integration among all departments in the office is used to generate report from those departments, time saving, decreasing error, decreasing work volume, process wastage of time and cost of material. Bishoftu city finance and economic development office also replies that share data/information

easily, updated information among departments, generate report at right time, controlling mechanism becomes easy, share work experience among employees. Shashemane city finance and economic development office confirm that easy to follow work flow, speed up work flow, increase customer satisfaction, get summarized report from all departments. Sebeta city finance and economic development office replies that integration among departments in a given office used to share data/information easily, each department might have enough knowledge on computerized system, one employee may cover other's duty, increase speed to service customers. Burayu city finance and economic development office also confirm that if all departments become integrated; it is better than IBEX, controlling mechanisms becomes easy. Jimma city finance and economic development office also mentioned that integration of all departments in the office is used to increase overall servicing of the office, efficiency, and effectiveness.

Concerning integration of departments with their current working departments summarized idea of all first level city administration's finance and economic development offices in Oromia region if financing, budget and planning, purchasing, auditing human resource management, even inventory, ICT and law becomes integrated, their department's efficiency becomes increased.

Concerning problems currently encounter using the existing IBEX system; respondents of Adama city finance and economic development office replies that Local Area Network (LAN) disconnection problem, IBEX accept one transaction more than once which is very dangerous accounting procedure. Bishoftu city finance and economic development office also mentioned problems of existing system IBEX as LAN disconnection, power disconnection, IBEX takes time to start/open the system, it is not easily customized. Shashemane city finance and economic development office replies that IBEX's main problems are: taking backup and restoring from and to the system respectively is difficult, stacking of the system even sometimes stop servicing, the system cannot allow editing transaction after once posted. Sebeta city finance and economic development office confirm that IBEX does not include all charts of accounts, no aging sequence of data i.e. receivable age, payable age, export-import problem, backup-restore difficulty and sometimes loss of data. Burayu city finance and economic development office also mentioned IBEX problem as: stacking of the system, fluctuation of power, does not easy to customize, does

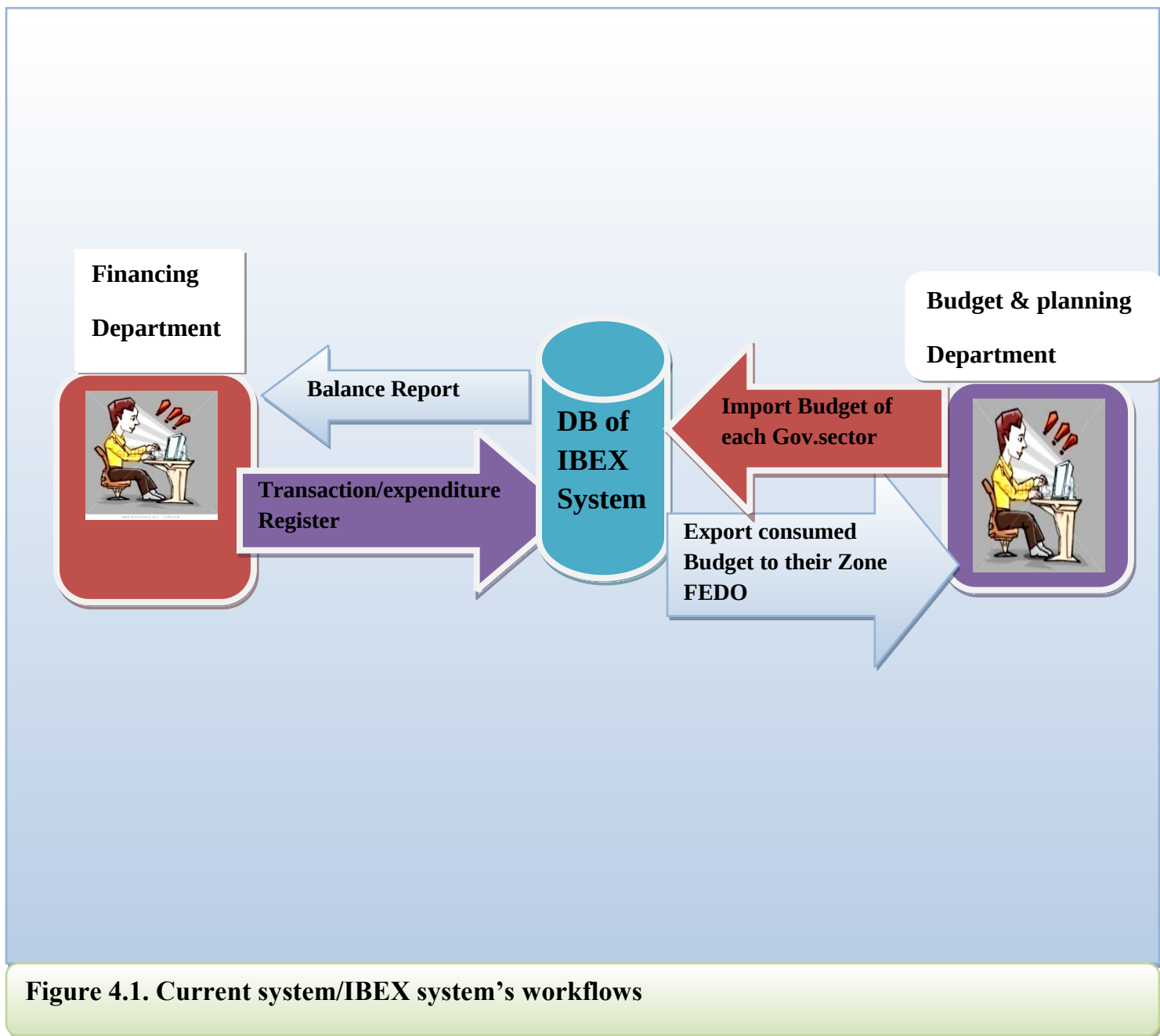
not include all departments. Jimma city finance and economic development office also replies that LAN disconnection, lack of flexibility, lack of maintainability and less secured.

Concerning type of report generation from IBEX; respondents of almost all of first level city administrations finance and economic development office have similar idea i.e. reports are monthly, quarterly, annually, balance sheet, income statement, audit report, expenditure report, payable report, account and budget report, trial balance report, revenue report and annually by hard copy. Concerning suggestions of respondents about improving processes and workflow efficiencies across the five departments of the first level city administration's finance and economic development offices is that it may be good working habit, more efficient, effective if really applicable.

4.3. INTERVIEW RESULTS

Summarized response from interview part is that IBEX changes some part of the offices department from manual working habit to computerized but the current situation working habit still needs to change all departments the first level city administration's finance and economic development offices to integrate/computerized system through ERP system. Lastly, concerning feeling of respondents if departments become integrated using ERP; most of respondents have no idea about ERP. Even though they have not knowledge about ERP they express their feeling happiness and expectations if integration among departments of their office becomes applicable.

After analyzing the questionnaire, interview, participation/observation; the researcher checked that the interest and feeling of sample employees of First level city administration's finance and economic development offices to upgrade from IBEX to ERP that means from integrating two departments to integrating five departments. To integrate main departments ideally the researcher, design the ERP framework for First level city administration's finance and economic development offices in Oromia region comparison with IBEX workflow as follow:



As shown on figure 4.1, current system/IBEX integrates only two departments of each First level city administration's finance and economic development offices whereas ERP system on figure 4.2 would integrate five main departments of the offices if further implemented.

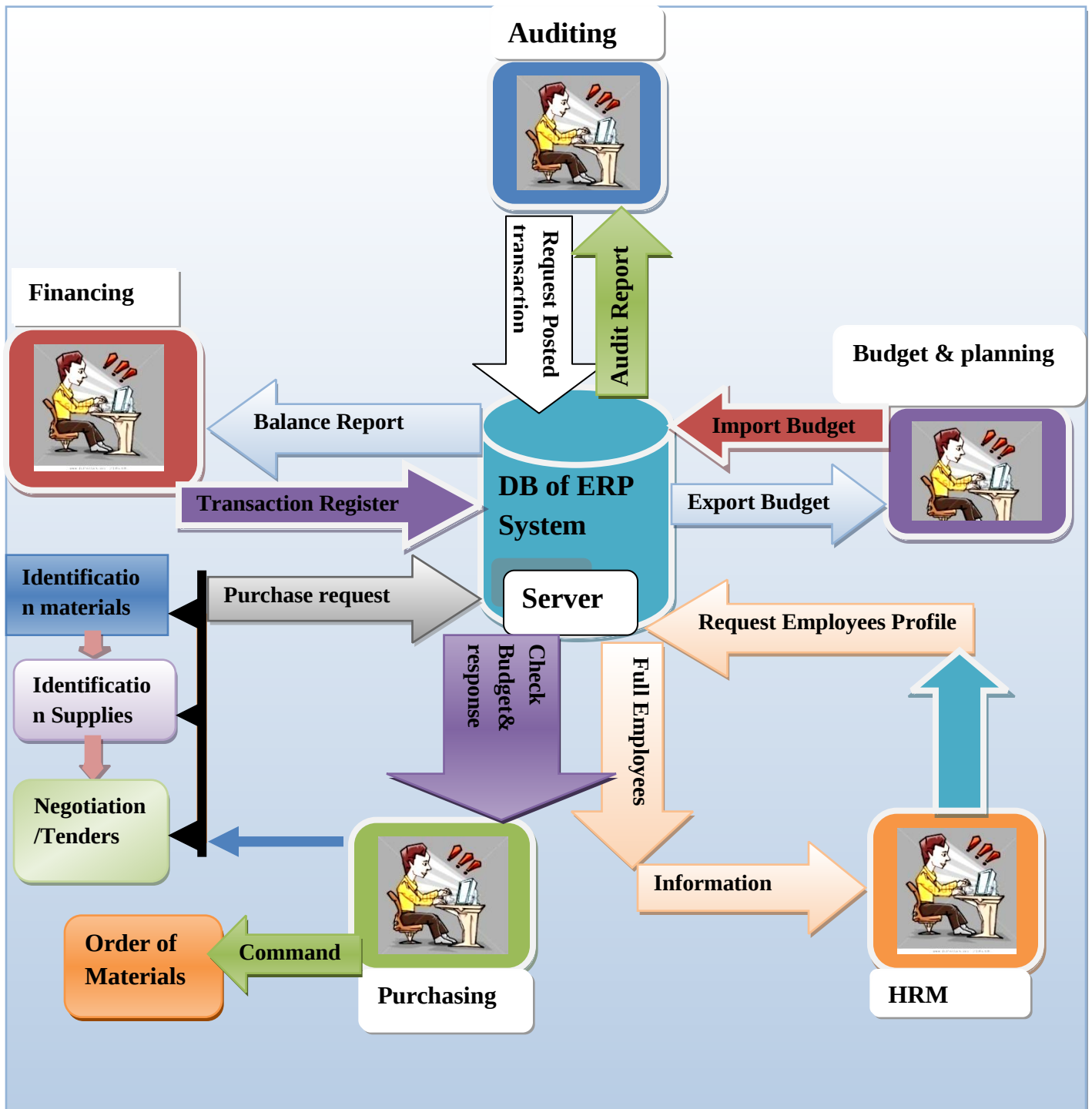


Figure 4.2. ERP Framework Design

Human Resource Management Department: HRM is one of the most critical important among the departments of each First level city administration's finance and economic development offices that ensures human capital and all issues relating to manpower like compensation, recruitment and selection, performance management, organizational development, safety and wellness, employee motivation, communication, administrative support and training. Furthermore, to justify HRM in terms of the Designed ERP framework for First level city administration's finance and economic development offices as shown on figure 4.1 above; ideally while for example HRM requests an employee profile Database of ERP replies full information of that employee like: his/her name, sex, address, salary, marriage status, nationality, age, reason of hired, educational status, etc of an employee.

Budget and Planning Department: is one department of the offices that prepare annual budget (recurrent and capital budget) for budgetary institutions (government sectors) and processing for determining and detailing an office's long- and short-term financial goals and controls allocated budget of each city administration. Sequential activities of budget and planning in each First level city administration's finance and economic development offices are first prepare strategic plan then five-year plan, annual operating plan and finally checks achievements and process reports. Ideally, to realize those activities using ERP system by integrating with other departments as shown on figure 4.1 above; budget and planning expert import state budget from their own zone finance and economic development office, feed municipality budget to the ERP Database then and export both state and municipal budget and budget report to their respective zone finance and economic development office.

Purchasing department: is one of the complex and loaded department in each First level city administration's finance and economic development offices. Purchasing is tightly integrated with the inventory control. Some processes of purchasing in each First level city administration's finance and economic development offices are that identification of materials, identification of suppliers, streamlines procurement and tender of required materials and made legal negotiation then send purchase request to ERP Database. Furthermore, the ERP database checks the necessary requirements like Budgetary institution (sector ask requisition), budget code, budget then response to the purchaser weather to order the material or not. After the Database decision, the purchaser took an action like order of materials, billing processes.

Financing department: Financing is the core of both profit organizations and non-profit organizations/offices in a world. In each First level city administration's finance and economic development offices; financing department has the responsibility to control and manage payable accounts, receivable accounts, credits in a given city administration. As shown on figure 4.1 above; experts of financing department register of transactions (payable transaction, receivable transaction and adjustment transaction), subsidiary with their code to the ERP Database. The Database (server) of an ERP replies different types of reports such as monthly report, quarterly report, trial balance report, general ledger report, annual financial report, etc.

Auditing department: Among main departments of First level city administration's finance and economic development offices; a department measures and evaluates the effectiveness of the other departments (human resource management, budget and planning, purchasing and financing) is auditing department. Since these offices audited by both internal and external auditors, this study focuses on an internal auditing. Internal audit has played an important role in implementing effective governance and assess the effectiveness of management's control practices. Now a day's Oromia region is highly affected by corruption. To overcome or reduce the corruption; auditors could be upgraded from manual to computerized in each First level city administration's finance and economic development offices. To do so, as shown on figure 4.1 audit expert request posted transaction from ERP Database then the Database returns posted transaction with many types audit report.

CHAPTER FIVE

5. EVALUATION OF THE DESIGNED ENTERPRISE RESOURCE PLANNING FRAMEWORK

This chapter covers the evaluation of the developed ERP framework design for First level city administration's finance and economic development offices in Oromia region. The overall evaluation of the ERP framework design was conducted through questionnaire survey.

5.1. EVALUATION OF THE DESIGNED ERP FRAMEWORK FOR FIRST LEVEL CITY ADMINISTRATION'S FINANCE AND ECONOMIC DEVELOPMENT OFFICES.

In evaluating the designed ERP framework, both ICT experts selected and contacted participants working in East Shoa Finance and economic development office were confident in supporting the ERP framework design. ERP framework design for those mentioned offices is the base for further ERP implementation for First level city administration's finance and economic development offices. Due to the fact that using Enterprise Resource Planning is more advance than Integrated Budget and Expenditure System; that means obviously integrating five departments is more advantageous than integrating two departments in a given office.

The overall responses of both ICT experts of East Shoa zone Finance and economic development office for each question from the questionnaire is summarized as in the following table.

Table 5.1 Evaluator's/ICT experts' responses

No	Question	Number of Participants 2	
		Number	Percentage
1	Enterprise Resource Planning Framework Design is developed for First level city administration's finance and economic development offices in Oromia region to integrate five main departments to share data/information from one main server. Do you think this framework design for further implementation of ERP could improve the current Integrated Budget and Expenditure (IBEX) system?		
	Yes	2	100%
	No	0	0%
	Total	2	100%
2	As IT expert; the designed ERP framework for First level city administration's finance and economic development offices fit with their office's current IT infrastructure?		
	Yes	1	50%
	No	1	50%
	Total	2	100%
3	Do you think that ERP could easy First level city administration's finance and economic development offices workload; if really applicable in their offices?		
	Yes	2	100%
	No	0	0%
	Total	2	100%

Concerning the question could the developed ERP Framework Design for First level city administration's finance and economic development offices in Oromia region improve the current IBEX system if further implemented? Both participants/100% of the respondents confirmed that the designed framework really improves if further implemented in First level city administration's finance and economic development offices. Additionally, one participant commented the overall academic research in Ethiopia as "most academic purpose research does not interpret to the real world to solve society's problem." The respondents also encourage the researcher to continue further for its implementation.

Regarding weather, the designed ERP framework for First level city administration's finance and economic development offices fit with their current office's IT infrastructure or not; 50% of participants replied that the designed ERP framework fit with the current IT infrastructure while the left 50% of participant respond that the framework design does not fit with current IT infrastructure. Furthermore, "Since the current IT infrastructure of the First level city administration's finance and economic development offices does not fit the offices need to modify their IT infrastructure".

While conducting the participants the researcher not only distribute questionnaire but also made discussions with them concerning the designed ERP framework. The result of discussion is that one participant said "The designed ERP framework is not fit with the current IT infrastructure of the mentioned offices because there is no server in the offices but as I observe the design it needs central server." Based on the above participant idea the researcher infers that the offices need some additional IT infrastructure for further implementation in the future. Concerning the question may ERP ease First level city administration's finance and economic development offices' workload, if really applicable in the offices? 100% of the respondents said yes.

Lastly, the opinions of evaluators/ICT experts if ERP system implemented in First level city administration's finance and economic development are that one participant express his opinion as "If it would be further implemented in those offices, the efficiency of the offices and customer satisfaction becomes increased. Because ERP seems that it replaces whole manual system to computerize. So I feel curiosity to see it." The other ICT expert said that "The designed ERP framework for First level city administration's finance and economic development offices can change current IBEX system to ERP system if it further implemented.

CHAPTER SIX

6. SUMMARY, CONCLUSION AND FUTUREWORK

6.1. SUMMARY OF FINDINGS

- Concerning existence of the IBEX system, 100% of respondents' reply that IBEX is implemented in each first level city administration's finance and economic development office and currently they are working using IBEX system. Even though they are working using IBEX system, after understanding ERP through questionnaire, interview and designed ERP framework they need to upgrade IBEX to ERP which means from integrating only two departments of the five main departments to integrating five main departments if further implemented in their own office.
- In case of effectiveness of IBEX (40% of respondents of Shashemene, 20% of respondents of Sebeta and 20% of respondents of Burayu) city finance and economic development office are dissatisfied and the rest are satisfied.
- Regarding in need of ERP implementation in their office (100% of respondents of Adama ,100% of respondents of Bishoftu, 80% of respondents of Shashemene, 100% of respondents of Sebeta, 80% of respondents of Burayu and 80% of respondents of Jimma) city finance and economic development office agree and (20% of respondents of Shashemene, 20% of respondents of Burayu and 20% of respondents of Jimma) city finance and economic development office have neutral idea. From this the researcher summarizes that averagely 92% of respondents of the first level city administration's finance and economic development offices agree and the left 8% of the respondents have neutral idea.
- Concerning suggestions of respondents about improving processes and workflow efficiencies across the five departments of the first level city administration's finance and economic development offices are that, ERP would be create good working process, more efficient, more effective than the existing system if really applicable.
- Summarized response from interview part is that IBEX changes some part of the offices department from manual working process to computerized but the current working process still needs to integrate all departments of the first level city administration's finance and economic development offices through ERP system.

- The evaluation study showed the designed ERP framework for First level city administration's finance and economic development offices seems to be applicable with modification for further ERP implementation in the mentioned offices.
- Half of evaluators of the designed ERP framework responses as "Since the current IT infrastructure of the First level city administration's finance and economic development offices does not fit the offices need to modify their IT infrastructure".
- Generally, both ICT experts of East shoa zone Finance and economic development office encourages the designed ERP framework and they hope for further future implementation.

6.2. CONCLUSION

In this paper the researcher discussed what ERPs are, definition of ERP, evolution of ERP from EOQ (Economic Order Quality) to ERP (Enterprise Resource Planning), characteristics of ERP in terms of organizational, technical and informational, main causes of ERP failure, advantages of ERP and how the first level city administration's finance and economic development offices of Oromia region can benefit from implementing ERP. Information system and ERP implementations in particular, are systems with high risk which require appropriate management. Organizations planning to implement ERP must learn how to identify the critical issues that affect the implementation process and know when in the process to address them effectively to ensure that the promised benefits can be realized and potential failures can be avoided. The purpose and objective of the study is to design ERP framework design for First level city administration's finance and economic development offices. The study has conducted survey questionnaire, detail interview discussions, observations and documents review and finally identified that believe of all purposively selected employee as ERP is more advance than IBEX in many ways especially in terms of integrating the main departments of each First level city administration's finance and economic development offices in Oromia region.

6.3. Limitation and Further Research

- Questionnaires were not returned on time because some of the employees were out of their principal work place for field works in relation to the on-going telecom expansion project. As a result, the response rate is to some extent negatively affected.
- Some of the employees were not volunteers to fill the questionnaire because they are busy of their daily routine. Moreover, some of them seem bored of feeling lots of questionnaire from different researchers every year.
- While the researcher observing some documents, some employees were not allowing to the documents.
- Many of the employees refuse to give their idea through interview
- Future research can be done on analyzing the gap between ERP theory and their actual practical use and implementation of the proposed ERP framework design.
- Since Oromia region's working language is Oromiffa, for future implementation of ERP must include at least three languages (Oromiffa, Amharic and English) because of Oromiffa is used for Oromia region government and society, Amharic language is used for Federal Democratic Republic of Ethiopia whereas English is for External donors.

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APPENDIX I: Survey Questionnaire

ADAMA SCIENCE AND TECHNOLOGY UNIVERSITY

SCHOOL OF GRADUATE STUDIES

DEPARTMENT OF COMPUTING

Dear Respondents

As member of the first level city administration's finance and economic development office, you are kindly invited to participate in a study that aims to investigate the design of ERP framework for First level city administration's finance and economic development offices.

The purpose of this questionnaire is to demonstrate how Enterprise Resource Planning (ERP) implementation can be initiated in the First Level City Administration's Finance and Economic Development Offices. In addition, this study will offer a conceptual framework on how best to integrate the five departments (Financing, Budget and planning, Purchasing, Auditing and Human resource management) to work together in a seamless manner. This study is conducted for the partial fulfillment of the requirements for Masters of Information System at Adama Science and Technology University. The outcome of this study will be used for academic purpose only.

To give you a hint about Enterprise Resource Planning (ERP);

ERP is accounting oriented, relational database based, multi-module but integrated, software system for identifying and planning the resource needs of an enterprise. ERP provides one user interface for the entire office to manage product planning, materials and parts purchasing, inventory control, distribution and logistics, production scheduling, capacity utilization, order tracking, as well as planning for finance and human resources.

Therefore, your genuine response to the questions is vital for the quality and successful completion of the study. The accuracy of the information you provide highly determine the reliability of the study.

Your help is much appreciated and please don't hesitate to contact me if you have any questions.

Contact Address: Tele - +251923820329/ E-mail – alexwor225@gmail.com

Name of the office: _____

Department: _____

Personal Information-Please put (√) in the box

1. Sex: Male: ☐ Female: ☐

2. Age:

Below 25 years: ☐ 26-30 years: ☐ 31-35 years: ☐ 36-40 years: ☐

41-45 years: ☐ above 45 years: ☐

3. Educational background:

I. Completed high school: ☐

II. Certificate/ Diploma: ☐

III. College/University degree: ☐

IV. Master's or doctorate degree: ☐

V. **Your office or department:**

Financing: ☐ Budget and planning: ☐ Purchasing: ☐

Auditing: ☐ Human resource management: ☐

Instruction 1:- If you agree on the statements please mark (√) on the provided box.

- 1. Is there any Integrated Budget and Expenditure System (IBEX) implemented or in the process of implementation in your office?**

Yes: ☐ No: ☐

- 2. If your answer to question 1 above is Yes: Which departments initiated the idea for adopting an IBEX system?**

Financing: ☐ Budget and planning: ☐ Purchasing: ☐

Auditing: ☐ Human resource management: ☐

Information Communication Technology (ICT): ☐

Others: ☐

Please specify: -----

- 3. Did you receive training to operate IBEX related to your work?**

Yes: ☐ No: ☐

- 4. If your answer to question 3 above is Yes: what type of training?**

Basic: ☐ Advanced: ☐

Other: ☐

Please specify: -----

- 5. What was the level of customization of the IBEX system?**

Minimum changes: ☐ Significant modifications: ☐

Other: ☐

Please specify: -----

According to Likert scale 5-point standard:

1=Strongly disagree; 2=Disagree; 3=Undecided; 4=Agree; 5=Strongly agree.

- 6. Do you believe automation of the five main offices in the First Level City Administration Finance and Economic Development Offices will improve productivity and better customer satisfaction?**

Strongly agree: ☐ Agree: ☐ Undecided: ☐ Disagree: ☐ Strongly disagree: ☐

- 7. How do you evaluate the existing IBEX system in regards to the following characteristics?**

	Very Satisfied	Satisfied	Moderately Satisfied	Dissatisfied	Very dissatisfied
Internal efficiency					
Customer satisfaction					
Timely report					
Better data management					
Integration among departments					
Data importing and exporting system					
Data backup and restore system					
Error detection					

Flexibility to edit transaction after once posted					
Maintainability after once failed					
Effectiveness					
Accuracy					

8. Does IBEX include all charts of accounts?

Yes: ☐ No: ☐

9. If your answer to question 8 above is No:

Please mention some of the left charts of accounts-----

10. Does IBEX support Regional work language (Oromia)?

Yes: ☐ No: ☐

11. Is interface of IBEX easy to register transactions?

Yes: ☐ No: ☐

12. If your answer to question 11 above is No: how frequently do you experience problems with your IBEX interfaces?

Sometimes: ☐ Frequently: ☐ A few times: ☐

Please specify-----

13. Who primarily identifies IBEX problems?

End-user: ☐ Support team: ☐

Other: ☐

Please specify: -----

14. To what extent does IBEX improve working habit from manual to computerized system in First Level City Administration's offices?

To a great extent: ☐ Somewhat: ☐ Very little: ☐ Not at all: ☐

15. Does IBEX integrate all departments of First Level City Administration's Finance and Economic Development offices?

Yes: ☐ No: ☐

16. If your answer to question 15 above is No: which departments are left?

Financing: ☐ Budget and planning: ☐ Purchasing: ☐

Auditing: ☐ Human resource management: ☐

Other: ☐

Please specify: -----

17. Where do you store the data?

On database: ☐

On file cabinet: ☐

On computer files and directories: ☐

18. What was the motivation for IBEX implementation?

Technical: ☐ Business / Strategic: ☐ Functional: ☐

Cost saving and other financial reason: ☐ Other: ☐

Please specify-----

19. Can you get the requested report easily from other departments across the First Level City Administration's Finance and Economic Development Offices?

Yes: ☐ No: ☐

20. If your answer to question 19 above is Yes: From which departments:

Financing: ☐ Budget and planning: ☐ Purchasing: ☐

Auditing: ☐ Human resource management: ☐

Other: ☐

Please specify: -----

21. To which departments do you share your data/information?

Financing: ☐ Budget and planning: ☐ Purchasing: ☐

Auditing: ☐ Human resource management: ☐

Other: ☐

Please specify: -----

22. What are the benefits of the IBEX system for the First Level City Administration's Finance and Economic Development Offices?

Led to supplier and customer satisfaction: ☐ Increase overall productivity: ☐

Reduced inventory levels: ☐

Others: ☐

Please specify: -----

23. What managerial problems, if any, are faced after the IBEX implementation?

Employee resistance to change: ☐ Internal conflicts: ☐

Cost overrun: ☐ Conflicts with Consultants: ☐

Other: ☐

Please specify: -----

24. What technical problems, if any, are encountered after the IBEX implementation?

Data migration: ☐ Security: ☐ Customization: ☐

Others: ☐

Please specify-----

25. Have you used or know ERP?

Yes: ☐ No: ☐

26. If your answer to question 25 above is Yes: Do you think ERP is appropriate solution for First Level City Administration's Finance and Economic Development offices?

Yes: ☐ No: ☐

Instruction 2: Please answer the following questions fully to the best of your knowledge

- 1. What would be the benefits if all departments of the First Level City Administration's Finance and Economic Development offices integrated through computerized system?**

- 2. Which departments must be integrated with your current working department?**

- 3. What problems do you currently encounter using the existing IBEX system?**

- 4. What kinds of report generation method were or are used in your department?**

5. Do you have any other suggestions about improving processes and workflow efficiencies across the five offices of the First Level City Administration's Finance and Economic Development offices?

6. Lastly, what do you feel if First Level City Administration's Finance and Economic Development offices becomes integrated using ERP system?

Thank you for your cooperation!

APPENDIX II: Interview Questionnaire

1. What is the name of your office?
2. Your position/department in your office
3. How long have you been working in your office?
4. How do you express IBEX?
5. What are the main functions of IBEX in your office?
6. What are the drawbacks of IBEX in your office?
7. Do you know/use Enterprise Resource Planning (ERP)?
8. ERP is software packages composed of several modules which integrate all departments of a given office. So what you say if ERP is implemented in your office?

APPENDIX III: Evaluation Questionnaire

1. Name of the office/Department: _____

2. Enterprise Resource Planning Framework Design is developed for First level city administration's finance and economic development offices in Oromia region to integrate five main departments to share data/information from one main server. Do you think this framework could improve the current Integrated Budget and Expenditure System (IBEX), if applicable?

Yes: ☐

No: ☐

3. Do you think that ERP could ease your workload; if really applicable in your office?

Yes: ☐

No: ☐

4. As IT expert; the designed ERP framework for your office fit with your current IT infrastructure?

Yes: ☐

No: ☐

5. If your office accepts this ERP framework design; what do you feel as IT expert?

APPENDIX IV: IBEX's homepage interface

[Logoff](#) [Change Password](#)

IBEX



Integrated Budget and Expenditure System

Version:1.3.14.91212521 Build Date:2008/10/02 10:46 AM

Current User:

Login : **XXXX**

Language Preference:

Available Modules:

[Budge and planning](#)

[Financing/Accounts](#)

APPENDIX V:Result of Survey Questionnaire

No	Item	ADAMA CFEDO 28		BISHOFT TU CFEDO 28		SHASHAM ANE CFEDO 28		SEBETA CFEDO 28		BURAY U CFEDO 28		JIMMA CFEDO 28		Total 168	
1	Is there any Integrated Budget and Expenditure System (IBEX) implemented or in the process of implementation in your office?	No	%	No	%	No	%	No	%	No	%	No	%	No	%
	Yes	5	100	5	100	5	100	5	100	5	100	5	100	30	100
	No	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total	5	100	5	100	5	100	5	100	5	100	5	100	30	100
2	If your answer to question 1 above is Yes: Which departments initiated the idea for adopting an IBEX system?														
	Financing	3	60	4	80	4	80	3	60	4	80	3	60	21	70
	Budget & planning	2	40	1	20	1	20	2	40	1	20	2	40	9	30
	Purchasing	0	0	0	0	0	0	0	0	0	0	0	0	0	0

	Auditing	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Human resource management	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	ICT	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Others	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total	5	100	5	100	5	100	5	100	5	100	5	100	30	100
3	Did you receive training to operate IBEX related to your work?														
	Yes	5	100	3	60	3	60	4	80	4	80	3	60	22	73
	No	0	0	2	40	2	40	1	20	1	20	2	40	8	27
	Total	5	100	5	100	5	100	5	100	5	100	5	100	30	100
4	If your answer to question 3 above is Yes: what type of training?														
	Basic	4	80	2	67	1	33	3	75	2	50	3	100	15	68
	Advanced	1	20	0	0	2	67	1	25	2	50	0	0	6	27
	Others	0	0	1	33	0	0	0	0	0	0	0	0	1	5
	Total	5	100	3	100	3	100	4	100	4	100	3	100	22	100
5	What was the level of customization of the IBEX system?														
	Minimum changes	1	20	3	60	3	60	1	20	1	20	3	60	12	40

	Significant modifications	3	60	2	40	2	40	3	60	3	60	2	40	15	50
	Others	1	20	0	0	0	0	1	20	1	20	0	0	3	10
	Total	5	100	5	100	5	100	5	100	5	100	5	100	30	100
6	Do you believe automation of the five main offices in the first level city administration finance and economic development offices will improve productivity and better customer satisfaction?														
	Strongly agree	2	40	1	20	1	20	4	80	3	60	2	40	13	43
	Agree	3	60	4	80	3	60	1	20	1	20	2	40	14	47
	Undecided	0	0	0	0	1	20	0	0	1	20	1	20	3	10
	Disagree	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Strongly disagree	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total	5	100	5	100	5	100	5	100	5	100	5	100	30	100
7	How do you evaluate the existing IBEX system in regards to the following characteristics?														
	Internal efficiency														
	Very satisfied	3	60	0	0	1	20	1	20	1	20	1	20	7	23
	Satisfied	1	20	4	80	0	0	1	20	1	20	2	40	9	30

Moderately	0	0	0	0	2	40	3	60	2	40	2	40	9	30
Dissatisfied	1	20	1	20	2	40	0	0	1	20	0	0	5	17
Very dissatisfied	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	5	100	5	100	5	100	5	100	5	100	5	100	30	100
Customer satisfaction														
Very satisfied	2	40	0	0	0	0	1	20	1	20	1	20	5	17
Satisfied	2	40	4	80	4	80	1	20	1	20	2	40	14	46
Moderately	1	20	1	20	0	0	2	40	2	40	2	40	8	27
Dissatisfied	0	0	0	0	1	20	1	20	1	20	0	0	3	10
Very dissatisfied	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	5	100	5	100	5	100	5	100	5	100	5	100	30	100
Timely report														
Very satisfied	3	60	3	60	1	20	1	20	1	20	3	60	12	40
Satisfied	1	20	1	20	1	20	1	20	1	20	1	20	6	20
Moderately	1	20	1	20	3	60	3	60	3	60	1	20	12	40
Dissatisfied	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Very dissatisfied	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	5	100	5	100	5	100	5	100	5	100	5	100	30	100
Better data management														
Very satisfied	2	40	2	40	1	20	1	20	1	20	3	60	10	33
Satisfied	2	40	2	40	1	20	0	0	1	20	0	0	6	20
Moderately	1	20	0	0	1	20	2	40	0	0	0	0	4	14

Dissatisfied	0	0	1	20	2	40	2	40	3	60	2	40	10	33
Very dissatisfied	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	5	100	5	100	5	100	5	100	5	100	5	100	30	100
Integration among departments														
Very satisfied	2	40	2	40	0	0	1	20	0	0	2	40	7	24
Satisfied	1	20	1	20	1	20	0	0	2	40	1	20	6	20
Moderately	1	20	1	20	0	0	2	40	0	0	0	0	4	13
Dissatisfied	0	0	1	20	4	80	1	20	2	40	1	20	9	30
Very dissatisfied	1	20	0	0	0	0	1	20	1	20	1	20	4	13
Total	5	100	5	100	5	100	5	100	5	100	5	100	30	100
Data importing and exporting system														
Very satisfied	1	20	1	20	1	20	2	40	1	20	2	40	8	26
Satisfied	2	40	2	40	1	20	0	0	1	20	1	20	7	24
Moderately	1	20	1	20	2	40	2	20	1	20	1	20	8	26
Dissatisfied	1	20	1	20	1	20	1	20	2	40	1	20	7	24
Very dissatisfied	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	5	100	5	100	5	100	5	100	5	100	5	100	30	100
Data backup and restore system														
Very satisfied	1	20	0	0	1	20	1	20	1	20	2	40	6	20
Satisfied	3	60	2	40	1	20	1	20	1	20	1	20	9	30
Moderately	1	20	3	60	2	40	3	60	3	60	0	0	12	40
Dissatisfied	0	0	0	0	1	0	0	0	0	0	2	40	3	10

Very dissatisfied	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	5	100	5	100	5	100	5	100	5	100	5	100	5	100	100
Error detection															
Very satisfied	3	60	0	0	1	20	0	0	0	0	1	20	5	17	
Satisfied	1	20	3	60	0	0	3	60	2	40	1	20	10	33	
Moderately	1	20	2	40	4	80	2	40	3	60	3	60	15	50	
Dissatisfied	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Very dissatisfied	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total	5	100	5	100	5	100	5	100	5	100	5	100	5	100	100
Flexibility to edit transaction after once posted															
Very satisfied	0	0	0	0	1	20	1	20	1	20	1	20	4	13	
Satisfied	2	40	3	60	0	0	0	0	1	20	1	20	7	24	
Moderately	1	20	1	20	0	0	0	0	0	0	1	20	3	10	
Dissatisfied	1	20	0	0	3	60	0	0	0	0	1	20	5	17	
Very dissatisfied	1	20	1	20	1	20	4	80	3	60	1	20	11	36	
Total	5	100	5	100	5	100	5	100	5	100	5	100	5	100	100
Maintainability after once failed															
Very satisfied	0	0	0	0	0	0	0	0	0	0	2	40	2	7	
Satisfied	3	60	2	40	0	0	1	20	1	20	1	20	8	27	
Moderately	1	20	1	20	0	0	0	0	1	20	0	0	3	10	
Dissatisfied	0	0	1	20	3	60	0	0	0	0	2	40	6	20	

	Very dissatisfied	1	20	1	20	2	40	4	80	3	60	0	0	11	36
	Total	5	100	5	100	5	100	5	100	5	100	5	100	30	100
	Effectiveness														
	Very satisfied	4	80	1	20	0	0	1	20	0	0	2	40	8	27
	Satisfied	0	0	3	60	0	0	0	0	2	40	1	20	6	20
	Moderately	1	20	1	20	3	60	3	60	2	40	2	40	12	40
	Dissatisfied	0	0	0	0	2	40	1	20	1	20	0	0	4	13
	Very dissatisfied	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total	5	100	5	100	5	100	5	100	5	100	5	100	30	100
	Accuracy														
	Very satisfied	4	80	1	20	0	0	1	20	1	20	1	20	8	27
	Satisfied	0	0	3	60	0	0	1	20	1	20	2	40	7	24
	Moderately	0	0	1	20	3	60	2	40	2	40	2	40	10	33
	Dissatisfied	1	20	0	0	2	40	1	20	1	20	0	0	5	16
	Very dissatisfied	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total	5	100	5	100	5	100	5	100	5	100	5	100	30	100
8	Does IBEX include all charts of accounts?														
	Yes	4	80	4	80	4	80	2	40	2	40	4	80	20	67
	No	1	20	1	20	1	20	3	60	3	60	1	20	10	33
	Total	5	100	5	100	5	100	5	100	5	100	5	100	30	100
9	Does IBEX support Regional work language														

	(oromifa)?														
	Yes	2	40	2	40	3	60	2	40	2	40	2	40	13	43
	No	3	60	3	60	2	40	3	60	3	60	3	60	17	57
	Total	5	100	5	100	5	100	5	100	5	100	5	100	30	100
10	Is interface of IBEX easy to register transactions?														
	Yes	4	80	3	60	4	80	4	80	4	80	3	60	22	73
	No	1	20	2	40	1	20	1	20	1	20	2	40	8	27
	Total	5	100	5	100	5	100	5	100	5	100	5	100	30	100
11	If your answer to question 10 above is No: how frequently do you experience problems with your IBEX interfaces?														
	Sometimes	1	100	1	50	1	100	0	0	0	0	2	100	5	63
	Frequently	0	0	0	0	0	0	1	100	0	0	0	0	1	12
	A few times	0	0	1	50	0	0	0	0	1	100	0	0	2	25
	Total	1	100	2	100	1	100	1	100	1	100	2	100	8	100
12	Who primarily identifies IBEX problems?														
	End user	1	20	2	40	1	20	2	40	0	0	3	60	9	30

	Support team	4	80	2	40	3	60	2	40	5	100	2	40	18	60
	Others	0	0	1	20	1	20	1	20	0	0	0	0	3	10
	Total	5	100	5	100	5	100	5	100	5	100	5	100	30	100
13	To what extent does IBEX improve working habit from manual to computerized system in first level city administration's offices?														
	To a great extent	4	80	3	60	1	20	1	20	1	20	3	60	13	260
	Somewhat	0	0	1	20	1	20	2	40	0	0	1	20	5	100
	Very little	1	20	1	20	3	60	2	40	3	60	1	20	11	220
	Not at all	0	0	0	0	0	0	0	0	1	20	0	0	1	20
	Total	5	100	5	100	5	100	5	100	5	100		100	30	100
14	Does IBEX integrate all departments of first level city administration's finance and economic development offices?														
	Yes	0	0	1	20	1	20	0	0	1	20	0	0	3	10
	No	5	100	4	80	4	80	5	100	4	80	5	100	27	90
	Total	5	100	5	100	5	100	5	100	5	100	5	100	30	100
15	If your answer to question 14 above is No: which departments are left?														

	Financing	3	60	2	50	3	75	0	0	0	0	0	0	8	30
	Budget and planning	2	40	2	50	1	25	0	0	0	0	0	0	5	18
	Purchasing	0	0	0	0	0	0	2	40	2	50	2	40	6	22
	Auditing	0	0	0	0	0	0	2	40	1	25	2	40	5	19
	Human resource management	0	0	0	0	0	0	1	20	1	25	1	20	3	11
	Total	5	100	4	100	4	100	5	100	4	100	5	100	27	100
16	Where do you store the data?														
	On database	4	80	2	40	5	100	3	60	3	60	2	40	19	63
	On file cabinet	0	0	1	20	0	0	1	20	1	20	2	40	5	17
	On computer files & directories	1	20	2	40	0	0	1	20	1	20	1	20	6	20
	Total	5	100	5	100	5	100	5	100	5	100	5	100	30	100
17	What was the motivation for IBEX implementation?														
	Technical	2	40	2	40	3	60	2	40	2	40	1	20	12	40
	Business/Strategic	0	0	0	0	0	0	0	0	0	0	1	20	1	3
	Functional	1	20	1	20	0	0	1	20	1	20	2	40	6	20
	Cost saving and other financial reason	2	40	2	40	2	40	2	40	2	40	1	20	11	37
	Other	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total	5	100	5	100	5	100	5	100	5	100	5	100	30	100

18	Can you get the requested report easily from other departments across the First Level City Administration's Finance and Economic Development Offices?														
	Yes	3	60	4	80	2	40	1	20	3	60	3	60	16	53
	No	2	40	1	20	3	60	4	80	2	40	2	40	14	47
	Total	5	100	5	100	5	100	5	100	5	100	5	100	30	100
19	If your answer to question 18 above is Yes: From which departments:														
	Financing	2	67	4	100	1	50	1	100	2	67	1	33	11	69
	Budget and planning	1	33	0	0	1	50	0	0	1	33	2	67	5	31
	Purchasing	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Auditing	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Human resource management	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Others	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total	3	100	4	100	2	100	1	100	3	100	3	100	16	100
20	To which departments do you share your data/information?														
	Financing	2	40	3	60	2	40	3	60	2	40	2	40	14	47

	Budget and planning	2	40	2	40	2	40	2	40	2	40	0	0	10	33
	Purchasing	0	0	0	0	0	0	0	0	0	0	2	40	2	7
	Auditing	1	20	0	0	1	20	0	0	1	20	1	20	4	13
	Human resource management	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Others	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total	5	100	5	100	5	100	5	100	5	100	5	100	30	100
21	What are the benefits of the IBEX system for the First Level City Administration's Finance and Economic Development Offices?														
	Led to supplier and customer satisfaction	3	60	4	80	3	60	3	60	3	60	2	40	18	60
	Increase overall productivity	1	20	0	0	0	0	0	0	0	0	0	0	1	3
	Reduced inventory levels	1	20	1	20	2	40	2	40	2	40	3	60	11	37
	Others	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total	5	100	5	100	5	100	5	100	5	100	5	100	30	100
22	What managerial problems, if any, are faced after the IBEX implementation?														
	Employee resistance to change	0	0	1	20	1	20	3	60	3	60	2	40	10	34
	Internal conflicts	1	20	2	40	0	0	0	0	0	0	1	20	4	13
	Cost overrun	0	0	1	20	0	0	0	0	0	0	0	0	1	3
	Conflicts with Consultants	1	20	0	0	2	40	2	40	2	40	2	40	9	30

	Other:	3	60	1	20	2	40	0	0	0	0	0	0	6	20
	Total	5	100	5	100	5	100	5	100	5	100	5	100	30	100
23	What technical problems, if any, are encountered after the IBEX implementation?														
	Data migration	3	60	2	40	3	60	0	0	2	40	3	60	13	43
	Security	0	0	1	20	0	0	1	20	0	0	1	20	3	10
	Customization	2	40	2	40	2	40	4	80	3	60	1	20	14	47
	Total	5	100	5	100	5	100	5	100	5	100	5	100	30	100
24	Have you used or know ERP?														
	Yes	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	No	5	100	5	100	5	100	5	100	5	100	5	100	30	100
25	If your answer to question 24 above is Yes: Do you think ERP is appropriate solution for First Level City Administration's Finance and Economic Development offices?														
	Yes	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	No	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0

