

Addis Ababa  
University

(Since 1950)



# **Factors Affecting Effectiveness of Centralized Public Procurement System in Federal Budgetary Government Organizations**

**By**

**Belachew Misganaw**

A Thesis submitted to Addis Ababa University School of  
Commerce in Partial Fulfillment of the Requirements for the  
Award of Masters of Arts Degree in Logistics and Supply Chain  
Management

**Advisor: Fessha Afework (Asst. Professor)**

**June, 2019**

**Addis Ababa, Ethiopia**

## DECLARATION

I hereby declare that the thesis entitled “Assessment of Factors affecting Effectiveness of Centralized Public Procurement System in the Federal Budgetary Government Organizations” is original and has not been submitted for other degrees or the like in this University or any other institutes. It does not contain any material, partly or wholly, published or written by others, except those references quoted in the text.

Belachew Misganaw

Student Name

\_\_\_\_\_

Student Signature

\_\_\_\_\_

Date

## CERTIFICATION

This to certify that Belachew Misganaw has carried out his thesis work on the topic entitled “Assessment of Factors Affecting Effectiveness of Centralized Public Procurement System in the Federal Budgetary Government Organizations” under my guidance and supervision. Accordingly, I hereby assure that his work is appropriate and standard enough to be submitted for the award of Master of Arts degree in Logistics and Supply Chain Management.

**Fessha Afework** (Asst. Prof.)

Name Advisor

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

## APPROVAL

This is to certify that this thesis has been submitted in partial fulfillment of the requirements for the award of master in Logistics and Supply Chain Management with my approval as Advisor and Examiner.

### Approved by Examining Board

_____	_____	_____
Advisor	Signature	Date
_____	_____	_____
Internal Examiner	Signature	Date
_____	_____	_____
External Examiner	Signature	Date

## **ACKNOWLEDGEMENTS**

My sincere gratitude goes to my research advisor, Professor Fesha Afework, for his valuable advice, guidance, support, and for awakening my enthusiasm to carry out this study. I would like also to thank the respondents who took part in this study, especially the procurement staffs from federal budgetary governmental organizations, and salute them for their courage and commitment to fill the questionnaires. Furthermore, I would like to thank my family for their comprehensive support during my study. Above all, to the Almighty God, whose blessings allowed me the privilege of completing this study without his compassion, generosity and love I can do nothing.

## Table of Contents

## Page

Acknowledgements.....	i
Table of Contents .....	ii
List of Tables .....	v
Acronyms and Abbreviations .....	vi
<i>Abstract</i> .....	vii
Chapter One.....	1
Introduction .....	1
1.1 Background of the study.....	1
1.2 Background of the Organization .....	3
1.3 Statement of the problem .....	4
1.4 Research questions .....	6
1.5 Research objectives .....	6
1.5.1 General objective .....	6
1.5.2 Specific Objectives .....	6
1.6 Significance of the study .....	7
1.7 Scope of the study .....	7
1.8 Limitation of the study.....	7
1.9 Definition of terms.....	8
1.10 Organization of the study .....	8
Chapter Two.....	9
Related Literature Review .....	9
2.1 Theoretical Review .....	9
2.1.1 Definition of Procurement .....	9
2.1.2 Public procurement.....	10
2.1.3. Principles of Public Procurement System .....	10
2.1.4 Systems of procurement.....	13

2.1.4.1 Centralized procurement system.....	13
2.1.4.2 Decentralized Procurement system.....	17
2.1.4.3 Hybrid systems.....	19
2.1.5 Centralized purchasing organization .....	20
2.1.6 Factors Affecting Procurement Structure .....	21
2.1.6.1 Contingency theory.....	21
2.1.6.2 Information and Power Related Factors.....	22
2.1.6.3 Procurement Related Factors .....	22
2.1.8 Factors Affecting Public Procurement Effectiveness .....	24
2.2 Review of Empirical Studies .....	26
2.3 Conceptual Framework.....	28
Chapter Three.....	30
Methodology .....	30
3.1 Description of the study area .....	30
3.2 Research approach.....	30
3.3 Research design .....	30
3.4 Population and sample .....	31
3.5 Data sources.....	34
3.6 Data collection procedures .....	34
3.7 Ethical consideration.....	34
3.8 Data analysis .....	34
3.9. Validity and Reliability.....	35
Chapter Four .....	37
Data Analysis, Presentation and Interpretation.....	37
4.1 Response Rate.....	37
4.2 Profile of Respondents.....	37
4.3 Survey Results .....	40

4.3.1 Procurement plan implementation effect on centralized procurement system .....	40
4.3.2 Employee’s Competence effect on Centralized Procurement Effectiveness .....	43
4.3.3 ICT adoption effect on Centralized Procurement Effectiveness .....	45
4.3.4 Operational Procedures effect on Centralized Procurement Effectiveness .....	47
4.4 Effectiveness of Centralized Procurement System .....	49
4.5 Tests and Statistical Analysis .....	52
4.5.1 Normality Test .....	52
4.5.2 Correlation Relation .....	54
4.5.3 Multicollinearity Assumptions .....	55
4.5.4 Multiple Regression Results .....	57
Chapter Five .....	61
Summary, Conclusions and Recommendations .....	61
5.1 Summary of Findings .....	61
5.1.1 Procurement Plan Implementation .....	61
5.1.2 Employee’s Competence .....	62
5.1.3 ICT Adoption .....	62
5.1.4 Operation Management .....	63
5.2 Conclusions .....	64
5.3 Recommendations .....	65
5.4. Suggestion for further Study .....	65
References .....	I
Appendix .....	VII

## List of Tables

Table4.1 Response Rate.....	37
Table4.2 Summary of the Profile of Respondents .....	38
Table4.3 Procurement plan implementation.....	41
Table4.4 Employee’s competency.....	43
Table4.5 ICT Adoption.....	45
Table4.6 Operational Procedures.....	48
Table4.7 Effectiveness of centralized procurement system.....	50
Table4.8 Tests of Normality Framework Agreement Effectiveness .....	53
Table 4.9 Correlation Matrix table.....	54
Table4.10 Multicollinearity Test .....	56
Table4.11 Model Summary .....	57
Table4.12 Analysis of Variance (ANOVA).....	58
Table4.13 Regression Coefficients .....	59

## List of Figures

Figure2. 1 Conceptual Framework .....	29
Figure4. 1 Normal distribution of the data.....	53

## ACRONYMS AND ABBREVIATIONS

FPPPS- Federal Public Procurement and Property Disposal Services

ICT - Information Communication Technology

FDRE- Federal Democratic Republic of Ethiopia

FPPA- Federal public procurement Agency

SPSS -Statistical Package for Social Science

UNDP - United Nations Development Program

UNDOC- United Nations Office on Drugs and Crimes

GDP - Gross Domestic Product

OECD- Organization for Economic Cooperation and Development

MOFED – Ministry of Finance and Economic Development

KPI- Key Performance Indicator

LSCM – Logistics and Supply Chain Management

## **Abstract**

*The main objective of this research is the assessment of factors affecting effectiveness of centralized public procurement system in the federal budgetary organizations. In this study the researcher tries to see the correlation between the independent variable (procurement plan implementation, competency of staff, ICT adoption and operational procedures) and dependent variable (effectiveness of centralized public procurement system which is on time delivery, the right quality, right quantity, right source, right price and the level of customer satisfaction). In order to get the required data primary data source was used. The data gathering tool was questionnaire from 114 respondents of federal governmental budgetary organizations procurement staffs using self-administered questionnaire and the final response rate was 86.8%. The research design were descriptive (frequency, percentage, mean and standard deviation) and explanatory design (spearman's correlation coefficient and multiple linear regressions) analysis with the help of SPSS 20.0 software packages. The correlation result (0.874) shows there is strong correlation between outcome variable and predictor variable. The regression result ( $r^2 = 0.763$ ) also shows predictor variables explain effectiveness of centralized public procurement system and all predictor variables are significant and have high impact on effectiveness and the remaining factors which account 0.237 which were unexplored variable affect effectiveness of centralized public procurement system. The result of the finding shows in federal budgetary government organizations there were problems in procurement plan implementation, competence of staff, ICT adoption and operational procedures. Based on the findings the study concluded that effectiveness of centralized public procurement system strongly affected by procurement plan implementation, competence of staff, ICT adoption and operational procedures which lead to ineffectiveness of the centralized public procurement system and finally source of dissatisfaction for end user organizations. From the findings the following recommendations of the research were made: PDDDS should provide continuous training to procurement staffs to improve the skill and competence of staffs so as to make quality of procurement need plan and complex procurement, establish well organized and integrated ICT infrastructure, improve operational management of the system and make regular assessment about the effectiveness of the procurement system.*

**Keywords:** Centralized Purchasing system, public procurement, Staff competency, Effectiveness

# Chapter One

## Introduction

### 1.1 Background of the study

Public procurement is an important government system for spending public money on acquisition of goods, services, public works and services needed for public programs and projects (Khan, 2018). Procurement includes purchase planning, standards determination, specifications development, supplier research and selection, value analysis, financing, price negotiation, making the purchase, supply contract administration, inventory control and stores and disposals and other related functions (Julius, 2016). The public procurement process as the heart of a sound procurement practice involves more than the procurement process alone; should consist of not only support, but also important components including strategy and policy of the organization, methods and procedures, personnel and organization, and information technology. It is emerging that the objectives of public procurement implemented through various means and must follow legal and regulatory rules, and well-set-out procedures and processes.

Public procurement accounts for 15-30% of the gross domestic products for many countries in the world (UNDOC, 2013). While public procurement represents an estimated 15% of GDP in Organization for Economic Cooperation and Development countries (OECD, 2010), and up to 25% of GDP in developing countries (OECD, 2007). The share is believed to be much higher in developing and least developed countries, where development of basic infrastructure is still the prime focus of governments and consumes huge budget (Basheka & Bisangabasaija, 2010). In developing countries, public procurement is increasingly recognized as essential in service delivery and it accounts for a high proportion of total expenditure. For example, public procurement accounts for 60% in Kenya (Akech, 2005), 58% in Angola, 40% in Malawi and 70% of Uganda's public spending (Basheka & Bisangabasaija, 2010).

When we come to the Ethiopian case, like the other countries more than 64 percent the total public expenditure is used for procurement of goods and services (MOFED, 2011). It is a huge amount of money that public bodies spent via public procurement. The expenditure on public procurement is increasing from year to year. However, the resource spent on public procurement is not used properly and in an economical manner and in the current Ethiopian public

procurement process, the compliant on public procurement process shows increment from year to year.

Now a day, because of the limited economic wealth available, there prevails a persistent burden on the state budget of several governments to make changes in the procurement sector of the state, to enable a credible system in place to achieve value for money. Centralization of purchasing is one of the ways to gain the merits influenced by indirect procurement in a firm. In this case, purchasing is organized and controlled through the centralized point of the institution. The essence of this is to gain the economies of scale by bringing together the purchasing processes of a firm's different units (Karjalainen, 2009). Costs of purchase could increase to a level of 80% of overall cost (Van Weele, 2005). As a result of this important influence, purchasing is an important area of study. This research work concentrates on one important area of purchasing i.e. centralization of purchasing.

Carefully designed centralized procurement strategies are able to reduce the total cost of public purchases, both by achieving lower purchasing prices and by streamlining the acquisition processes, so reducing transaction cost (Khan, 2018). The structure is described as a situation whereby a centralized purchasing unit, operating on the strategic and tactical level, is found at a corporate level. The department is often responsible for the various product specification, supplier selection, contract negotiations and coordination of activities. While the corporations' different business units' conduct the operational purchasing programs (Van Weele, 2005). Purchasing is when all the vital decisions are centralized to procure items either by competitive tendering, single sourcing or by negotiations are in the care of a centralized procurement unit assigned to undertake procurement activities for the satisfaction of organizational need and the centralized purchasing, administration and provision of goods, and services necessary for the running of the numerous governmental organizations and state firms as a whole.

The use of centralized procurement system ensures the availability of several items to all government organizations from a particular length of time at a renegotiable price. State units procurement are thus, advice to take advantage of centralization of purchasing systems that will enable to get goods, works and services at a competitive charge that in the long run value for money (Dimitri et al, 2006). In federal government organizations, even though all procurement activities has not been centralized, public procurement and property disposal service has established in July 2010 by the council of ministers by regulation number 184/2010 by having

objectives to enable the timely supply of goods and services, which are commonly used by public bodies as well as goods and services which have national strategic significance, in the desired quality and at prices attributable to economies of scale resulting from bulk purchases and other two objectives. A proper assessment of the fiscal influence of centralized state procurement is significant to different institutions linked with the public procurement procedure. The assessment assists contracting parties in decision making on participation in terms of centralization. This will help an institution carrying out centralized purchasing to react to needs time and conform to the public procurement centralization strategies.

There must be an understanding of the fact that the positive outcome is not always expected from the centralization of purchasing. The central procurement institutions constitute an extra connection in the supply chain system (Young, 1989) creating a huge gap amid the purchaser and the one supplying. Thus, there must be a clarification of the link which is in existence (Nollet & Beaulieu, 2005), and the assessment of the influence of centralized purchasing is also a vital tool in achieving that decisions about centralization are important to the country. There is a need to study on the factors influencing implementation of centralized purchasing procedures. This study therefore sought to fill this gap of knowledge by assessing factors influencing implementation of centralized purchasing processes for the effectiveness of federal public organizations.

## **1.2 Background of the Organization**

The study has been conducted on the Ethiopian federal Public Procurement and Property Disposal Services. The service was established by Regulation No. 184/2010 of the council Ministries and is executing its activities starting October first 2010. The service is accountable to the ministry of Finance and Economic Development. The main objectives of the service is to enable the timely supply of goods and services which are commonly used by public bodies as well as goods and services which have national strategic significance, in the desired quality and at price attributable to economies of scale resulting from bulk purchases. The body established also to enable a speedy disposal by sale of properties of public bodies at fair prices. Public procurement and property disposal service also works to assist public enterprise in the procurement of goods and services and disposal of assets.

The values of the PPPDS includes transparent and accountable service; customer satisfaction centered efficient and quality service; law, regulation and directive for result, culture of disdaining corruption, culture of team work and proactive for learning and change.

The core functions of the body includes carryout efficient and effective procurement implementation by expertise who have accurate knowledge on the law and procedure of the procurement; to be advantageous in the discount resulted from bulk purchases; provide commonly used goods and services in order to have uniform and similar standard and save the public resources that allocate for unnecessary procurements; use knowledgeable and skillful workers that ensure productive human resource utilization; to save time and money that spends in each organization' for decentralized way of purchasing; to make procurement lead through plan and encourage open tender procurements and promote the system of good governance; to enable monitoring and controlling bulky purchase implementation easily by getting information from one source; to encourage suppliers those have better performance to compete in the bidding processes and to minimize purchasing related complains as far as the whole procurement is done in one center.

### **1.3 Statement of the problem**

An efficient public procurement system is very important to the development of countries and is a tangible implementation of their national commitments to making the best possible use of public scarce resources (Basheka, 2009). As per the organization for Social and Economic Development (OECD, 2010), on the average developing countries public procurement accounts for up to 15% of GDP and 20% of public expenditures. According to the 2014 Ethiopian Public Procurement and Property Administration Agency report (PPPAA, 2014), as cited by Tariku (2017:3), in Ethiopia more than 60% of the total public expenditure has been spent through public procurement in a year. It is a huge amount of money that public bodies spent via public procurement of course needs to manage with due care. Therefore public procurement is vital to government service delivery.

Despite lots of effort have been made by Ethiopian government to improve the procurement system, there are problems of effectiveness in public procurement. Some of the problems include a gap between what stakeholders need and what is actually performed, a lot of complaints since the quality of goods purchased doesn't fit with the specification, big gap between purchase

request and delivery of items, quality problems and/or mismatch of items requested with procured and delivered (wrong quality); excessively delayed purchases (wrong timing); and incurring additional costs as result of long duration of the purchase process (Zegeye, 2015). Moreover, different project works are being affected due to the lack of effective procurement process, which is the main cause of insufficient service delivery in all public sectors (Anteneh, 2015).

Different researchers found that the effectiveness of public procurement is affected by different factors. Some of them include inefficiency, nontransparent procurement processes, and lack of knowledge of rules and regulations (Roman, 2017). In addition, according to the findings of the study of Tariku (2017), the suppliers' performance execution, suppliers' capacity, public bodies' procurement plan & ICT utilization have also significant impact on effectiveness of centralized procurement system in the federal government organizations. These might be the major cause for the ineffective management of the procurement function which will lead to under-utilization of the budget by government organizations and delay of many development activities as all of us observe in many government organizations.

Even though the above and other different researchers tried to study about the factors affecting public procurement effectiveness, none of them has focused on study with reference to effectiveness of operations of centralized public procurement. There is no study to indicate the status of effectiveness of centralized procurement system. This gap initiates the researcher to study the issue. Thus, this study is designed to bridge this gap by assessing the centralized procurement system on effectiveness of organizational operations operationalized by FPPDPS. The status of effectiveness i.e. on time delivery of goods and services, required quality and quantity of goods and services, obtaining these from the right source on the right price and the satisfaction for the federal government organizations will be assessed and its relationships with factors such as procurement plan implementation, employees' competence, ICT adoption and operational management will be analyzed.

## **1.4 Research questions**

1. To what extent does the procurement plan implementation affects centralized procurement system in the federal Public Procurement and Property Disposal Services?
2. To what extent does the competency of staff influence the effectiveness of centralized procurement system in the federal Public Procurement and Property Disposal Services?
3. How does adoption of ICT affect the effectiveness of the centralized purchasing system of the federal Public Procurement and Property Disposal Services?
4. To what extent the operational procedures affect the effectiveness of the centralized public procurement practice in the federal Public Procurement and Property Disposal Services?

## **1.5 Research objectives**

### **1.5.1 General objective**

The general objective of this research is the assessment of factors affecting centralized public procurement system in the federal budgetary government organizations.

### **1.5.2 Specific Objectives**

The specific objectives of the research are:

1. To examine the extent to which procurement plan implementation affects effectiveness of centralized procurement system in the federal Public Procurement and Property Disposal Services
2. To examine the extent in which competency of staff influence the effectiveness of centralized procurement in the federal Public Procurement and Property Disposal Services
3. To assess the effect of ICT adoption on the effectiveness of the centralized public procurement practice in the federal Public Procurement and Property Disposal Services.
4. To assess the effect of operational procedures on the effectiveness of the centralized public procurement practice in the federal Public Procurement and Property Disposal Services.

## **1.6 Significance of the study**

The research work highlights about the centralized purchasing systems and its effects on government institutions. The study also provided different empirical evidences about the challenges of centralized purchasing in the public organizations. It is also expected to help broaden the researcher's knowledge base on centralized procurement for government institutions especially by the federal public procurement and property disposal service in Ethiopia. This work may serve as secondary data source in the process of improvement of the policies of the government procurement system. The research will also be used as the basis for future research works by other students and researchers in similar areas of study and serve as reference source for future researchers.

## **1.7 Scope of the study**

The scope of the study is delimited to the central public procurement practices operated by Federal Public Procurement and Property Disposal Services. Even though there might be many variables that affect effectiveness of centralized procurement, this study is delimited to procurement plan implementation, staff competence, ICT adoption and operational management. The study covers federal budgetary public bodies that are benefiting from the purchasing of frame work agreement, goods, works, consultancy or other services from Public Procurement and Property Disposal Services. On the other hand the study did not cover the decentralized procurement practices in the federal government organizations. In addition the study did not addressed procurement activities of regional public bodies and procurement activities of state owned enterprises (SOE).

## **1.8 Limitation of the study**

Lack of related previous researches and written documents in the area of study was one of the major problems of the research to extract different information. In addition, the unavailability of the key personnel for interview purpose during data collection, being reluctant in providing accurate and relevant information by some respondents were challenges. Some respondents were not also interested to give their time to answer the questionnaire because of they were busy with their office work. Some respondents were not punctual in returning the questionnaires. The

researcher tried to manage limitations by explaining the objective of the study and strict follow up during administering of questionnaire.

## 1.9 Definition of terms

**Centralized purchasing system** refers to one that gives a department an ultimate authority to make all the buying of goods and services within an organization. In centralized purchasing various departments of an organization make their requisitions through a centralized buying unit which scrutinizes, adjusts and consolidates (puts together) all the orders placed in order to come up with one big order (Van, 2000).

**Public procurement** is defined as the government's activity of purchasing goods and services needed to perform its functions. It refers to procurement planning, contract placement and contract administration (Arrowsmith, 2010).

**Staff competency** are the applied knowledge and skills, experience and the behavior required to get things done very well in procurement staffs (Armstrong & Baron, 1995).

**Effectiveness** is the degree to which something is successful in producing a desired result – success (Julius, 2016).

**Procurement Planning** is the process of deciding what to buy, when and from what source. During the procurement planning process, the procurement method is assigned and the expectations for fulfillment of procurement requirements determined (Julius, 2016).

## 1.10 Organization of the study

The study was organized into five chapters. Chapter one depicts the background of the study, background of the organization, statement of the problem, general and specific objectives of the study, research questions, significance of the study, scope of the study, limitation of the study, definition of terms and the organization of the study. Chapter two of the research deals with all relevant theoretical, empirical and conceptual literature on the chosen topic. The third chapter presents the research methodology used in the study. Chapter four presented the research findings, analysis of data and presentations. Conclusions and possible recommendation are given in the final chapter which is chapter five.

## Chapter Two

### Related Literature Review

#### 2.1 Theoretical Review

##### 2.1.1 Definition of Procurement

Procurement is a term to describe the whole process and responsibility of acquiring products or services from external suppliers to satisfy the demand of production and operation in an organization (Hyttinen, 2013: 7). According to Azeem (2007), public Procurement is defined as acquiring goods, works and services at the most suitable probable charge of proprietorship, at the correct measure, value, at the appropriate time, delivered at the appropriate destination directly for the profit or usage of governments, companies, or persons, commonly through an agreement. It has a cardinal impact on the economy and directly influences the everyday living of individuals since it constitutes the manner in which public policies are carried out (Azeem, 2007).

According to van Weele (2005), procurement is defines as: “The management of the company’s external resources in such a way that the supply of all goods, services, capabilities and knowledge which are necessary for running, maintaining and managing the company’s primary and support activities is secured at the most favorable conditions.” He stated that the procurement operations cover six activities:

- establishing the requirement of the goods and services desirable
- selecting and managing the best supplier
- negotiations with suppliers and write up contract
- place the order with the supplier
- monitor and control the order to secure supply
- follow up and evaluation

Sarpong (2007) defined procurement as the management of sustainable acquisition of goods, works and services to optimize value for money through a professional, auditable and transparent framework. He believes that any good procurement should have the following principles:

- Efficiency and Effectiveness: all procurement functions should aim at achieving the right quantity and quality at the minimum cost
- Competitiveness: the procurement process should ensure some competition among the competing parties
- Ethical approach: procurement process should avoid all practices that could lead to possible conflict of interest
- Fairness: all procurement should aim at achieving fairness and ensuring that all participating bidders are given equal opportunity to bid
- Transparency: the procurement process should be open enough to avoid giving competitive bidders advantage over other bidders.

### **2.1.2 Public procurement**

Public procurement means procurement made by procuring entity using public funds to acquire goods, works and services required to satisfy certain needs in the right quantity, time, quality and price for the direct benefit or use of governments, corporations, or individuals, generally via a contract. It involves management of the acquisition of goods, works and services to achieve value for money through professional, auditable and transparent framework (Alex, 2007). According to Mamiro (2010), public procurement process stretches from procurement planning, budget allocation, bid invitation, bid evaluation, contract award, and contract management. It ranges from the purchase of routine supplies or services to formal tendering and placing contracts for large infrastructure projects by a wide and diverse range of contracting authorities. Public purchases are accountable to the public, whose money is spent, including disappointed tenderers and potential suppliers. As such, they must produce procedures and practices which will stand up to scrutiny during either government audits or challenge through the courts of any purchasing decision that has not been made procedurally. The primary purpose of public accountability is to prevent abuses of taxpayer's money (Patrick, Mamati & Jonathan, 2010).

### **2.1.3. Principles of Public Procurement System**

Public procurement system is based on the four suggested basic principles of maximizing economy and efficiency; promoting competition and encouraging maximum participation by suppliers, contractors and consultants; fair and equitable treatment of all suppliers, service

providers and contractors; encouraging national manufacturing, contracting and service industries; integrity, and achieving transparency and accountability in the procurement process. (World Bank, 2000)

### **A. Maximizing economy and efficiency**

Public procurement is concerned with purchasing of goods/services to the required quality of intended purpose in the required time and at the right price (Arrowsmith, 2010). In other words it is termed as value for money. The principle of economy and efficiency requires the usage of funds allocated in way that envisaged goals will be attained while on the other side achieving desired results on the procurement process with minimum resources involved. Broadly, the term value for money is concerned with the economy, effectiveness and efficiency of a product, work or service in the procurement process (Mamiro, 2010).

In general terms, economy takes into consideration factors such as sustainability, quality, and non-price attributes and/or life cycle cost as appropriate that support value for money. Efficiency refers to maximizing the output for a given level of input, and effectiveness refers to actual outcomes compared to intended outcomes (Khan, 2018).

### **B. Promoting and encouraging competition**

In public procurement there is promoting and encouraging competition among eligible suppliers, contractors or service providers in acquisition of goods, works and services by procuring entities provides better value in terms of lower price and acceptable quality in the procurement process (EPC, 2007). This principle plays the role of minimizing opportunities for corruption and collusive activities through the elimination of environment that do not allow many eligible suppliers or contractors to participate in public procurement offerings (GOJ, 2010). The issue of selecting procurement method and setting requirements on particular tender has to be guided by this principle. The type of procurement method selected has repercussion on the effectiveness and efficiency of the procurement process.

### **C. Ensuring fairness and equity**

Fairness and equity is attained by procurement entities through taking into account the best interests of a public authority, in giving all eligible suppliers, contractors and service providers' equal opportunities to compete in providing goods or executing works or providing services

(PPA, 2004). It requires that comparable situations should not be treated differently and that different situations are not treated similarly otherwise the differences or similarity in treatment can be justified objectively (Weller *et al*, 2011). All payments due to suppliers, contractors or service providers are made promptly in accordance with terms of the procurement contract so as to maintain credibility and creditworthiness of a public authority. In the time where not suppliers or contractors not paid on time interests must be charged for compensation of loss of value and the same be applied to suppliers or contractors delaying delivery of works or goods by imposing liquidated damages.

#### **D. Integrity, accountability, and transparency**

The principle of integrity requires that the procurement process are honest and in compliance with the respective laws, regulations and guidelines that the best available, most suitable technical expertise is employed in a nondiscriminatory manner, fair and open competition resulting to a quality product, service or works execution at fair price that take into consideration of expected goals by procuring entity and the public at large (Wiehen & Olaya, 2006). The procurement has to be carried out without any influence of corruption which can be in the form of bribes, personal interests, political reasons or any other grounds favoring one firm to be awarded the contract (Arrowsmith *et al*, 2010).

Lack of integrity in the procurement process, prevents public entities in achieving value for money and results to delay of the procurement process due to delayed decision and complaints which may be lodged by suppliers, contractors or service providers involved on the particular procurement. For procurement to achieve its goals, integrity needs to be exercised through professionalism in undertaking procurement proceedings. Professionalism is a discipline whereby educated, experienced and responsible procurement officers make informed decisions regarding procurement operations (Sarfo, 2011).

Accountability is defined as situation where the government or procurement entities and individual officials on the one hand and suppliers, contractors or service providers on the other hand must be accountable for the correct and complete execution of their tasks and duties and the decisions and actions being made in their areas of responsibility. The records explaining and justifying all decisions and actions made should be created and archived (Wiehen & Olaya, 2006).

For effective public procurement system, there is a need of ensuring competition and equal access, probity, and accountability by making the public procurement processes as transparent as possible, requiring the public disclosure of all relevant information (Jones, 2007).

The principle of transparency is concerned with the legality, openness and publicity of public procurement awarding procedures adopted by procurement entity. Timely and proper notices of procurement processes carried out as well as equal criteria and conditions known in advance and providing a room for accessing information on procurement proceedings contribute to attainment of transparency (Mlinga, 2008). The transparency principle requires that information regarding the procurement process be in the public domain. Potential suppliers of property and services should have full access to information on the procurement requirements, rules and decision-making criteria. Bids are opened publicly and award decisions are published (RTT, 2005).

#### **2.1.4 Systems of procurement**

According to CIPS (2012) cited by Mohammed (2013) there are various systems of procurement adopted by various organizations. The common systems are centralized, decentralized systems and hybrid of the two systems. The structural formation of purchasing function is dependent on numerous factors, such as, nature of business, availability of required items, and elasticity of demand, condition and nature of market and so on. It is the liberty of the management to choose the appropriate one that will meet the operational requirement.

##### **2.1.4.1 Centralized procurement system**

A centralized procurement occurs when “all main procurement is controlled at one central location for the entire firm” (Leenders & Johnson 2000:28). This structure may be described as a situation where a central purchasing department, operating on the strategic and tactical level, is found at a corporate level. This department is often responsible for product specification, supplier selection, contract negotiations and coordination of activities. While the corporation’s different business units conduct the operational purchasing activities (Van Weele, 2005). Centralization of purchasing makes it possible to control the resources used and the activities performed at one place in the organization. According to Karjalainen (2009), centralization does not necessarily refer to all procurement functions but at least to a centralized supplier management and contract handling.

Procurement centralization is nowadays a common way to leverage the benefits of indirect purchasing in an organization. The main aim of it is to capture the economies of scale by unifying the procurement processes of an organization's different units (Karjalainen, 2009). Usually this involves that a corporate-wide frame agreement is set for all the procurements to be made from certain preferred suppliers, and the amount of suppliers per product category is kept low (Karjalainen, 2009). Like this, spend per a supplier can be maximized and hence the procuring power of the buying organization increased. This can lead to a better negotiation position regarding prices, quality, compliance, and strategy with suppliers (van Weele, 2010).

Procurement centralization also supports global approach in the procurement of an international organization. An organization can reach even more economies of scale by using same international suppliers in its different country units. Therefore the globally consolidated purchasing power can be leveraged to negotiate better prices with internationally operating suppliers (Lysons & Farrington, 2012).

Centralization as structure for the public procurement system has its own advantages and disadvantages.

#### **A. Advantages of centralized procurement**

In centralized procurement system, there is a higher integration of the procurement function that has a number of advantages and can be used for cutting down procurement costs (Karjalainen, 2009).

**i. Carryout efficient and effective procurement implementation.** This can be achieved by using experts who have accurate knowledge on the law and procedure of the procurement. Buyers can focus on a particular area (particular skills, such as contract negotiation, or particular materials and markets, such as machinery or chemicals) and develop their knowledge to greater depth, with potential to improve quality and lower costs. If different procurement staff is based in a single, centralized unit, there is the opportunity for each buyer to develop knowledge in more specialized techniques, procedures or categories of procurement. According to Piga, Dimitri, & Spagnolo (2006), cited by Karlsen and Tollefsen (2009), a centralized purchasing function collects the skilled human capital and expertise found in an organization. Since the human resources are "all in one place" it is easier to allocate it more effectively. It also gives the purchasing function the ability to pay for talent, which again increases the knowledge and

expertise found in the function (Leenders *et al*, 2006). This enables the organization to form specialized teams to better design procurement strategies, and continuously improve them over time through learning and experience (Piga, Dimitri & Spagnolo, 2006).

**ii. Potential for the consolidation of requirement/Cost advantage:** One of the major advantages with centralization is that it enables firms to consolidate its purchasing requirements (Leenders *et al*, 2006). This is putting multiple requisitions from different units together into single, larger orders or contracts. This reduces the frequency of small orders for commonly purchased items; reduces transaction and transport costs; and enables buyers to obtain better prices (with economies of scale, bulk discounts, etc.) and higher levels of service (as potentially more significant customers of suppliers). The number of suppliers is likely to be smaller, too, and order and contract administration may be more streamlined. Centralized purchasing function enables coordination across the organization in relation to individual suppliers. Such consolidation and coordination give firms greater bargaining power on the demand side, and can thus reduce the suppliers' rent. This is possible due to the buying economies of scale, which is defined as "a reduction in the cost of purchasing raw materials and components or of borrowing money due to the increased size of the purchase" (Munson, 2007). Centralized procurement could provide maximum discount from the supplier, because large quantity of required materials in one purchase allows supplier to feel safe about higher revenue and it would be willing to reduce the price. Some cost estimates of the savings achieved through centralized purchasing have been presented in the literature, and they vary between 10% and 20% comparing to the decentralized purchasing (Karjalainen, 2011).

**iii. Greater co-ordination of procurement activities.** Another advantage of a centralized purchasing function is that the firm is able to coordinate and control the policies and procedures related to purchasing (Leenders *et al*, 2006). With such coordination, firms can avoid duplication of efforts throughout the organization. Uniform procurement policies, procedures and good practice can be introduced and applied, facilitating standardization, variety reduction, and better value for money and improved compliance and minimizing maverick and ad hoc procurements. Staff training and development can also be undertaken more systematically. In addition, coordination of purchasing activities may reduce the risk of price anomalies between the business units of divisions in the same organization.

**iv. Greater standardization of specifications, which may enhance quality and efficiency in a number of ways:** facilitating the consolidation of orders; reducing inventory and handling costs (less variety and greater utilization); focusing the supplier base (fewer specialist requirements); improved quality management (ease of inspection); and simpler and more accurate communication about requirements (Munson, 2009). Centralization helps to achieve economies of process. Economies of process mean less administrative work and a decrease in administration duplication in addition to reduction of purchasing organization expenses as a purchasing synergy benefit (Karjalainen, 2011). The company that is making the purchase should at first collect information about material requirements from all units internally. That would reduce number of outgoing orders and incoming invoices, what would reduce work load on accountants who register expenses. The same improvement would happen on supplier's side as well leading to mutually beneficial cooperation. It is convenient for modern management and reduces the management on repeating actions (Li, Zhang & Sun, 2012).

**v. More effective control of procurement activity.** Procurement performance can be monitored and compared with defined KPIs; budgetary control may be applied to the function (and total external expenditures); and the unit may be viewed as a separate cost center for closer accountability.

**vi. Avoidance of conflict between divisions,** which may otherwise arise due to competition for scarce materials, unequal budgetary allocations of procurement expenditure, or differences in value obtained in procurements.

**vii. Access to specialist skills, contacts and resources** (such as procurement research), which may not be available at divisional level. Centralization often enables companies to assign certain categories of items to specialists, who tend to be more efficient because they are able to concentrate their efforts on relatively few categories, which they are responsible for negotiating the agreements (Baldi & Vanoni, 2014). High-skill personnel means savings in terms of time spent in preparing documents and in designing the procedures. Workers in a centralized department can work together, share information and end up with best practices easier as compared to situations in which they are scattered across different units (Dimitri, 2006).

## **B. Disadvantages of Centralized Procurement**

According to Iloranta and Pajunen-Muhonen (2012), some of the disadvantages of the centralized procurement system are:

- Limit of decision making of the business units;
- Might gain resistance in the business units;
- Narrow focus on the procurement personnel;
- Connection between procurement and other administrative functions can be weak; and
- The distance between the internal customers and the procurement personnel can be large.

### **2.1.4.2 Decentralized Procurement system**

A decentralized procurement occurs when government agencies serve as procuring entities which fulfill their needs in goods, works, and services, in accordance with the country's legislative and/or regulatory requirements (Khan, 2018). In other words different organizations are responsible for their own purchasing activities. This structure can be found in companies with a business unit structure, and where the business unit management is responsible for all its purchasing activities (Van Weele, 2005). A decentralized purchasing function is also typical for project based businesses. In such a system, the buyers are often responsible for a large variety of products, which are bought in smaller quantities compared to a centralized purchasing function (Gadde & Hakansson, 2001).

In the decentralized procurement system different divisions/ business units are accountable for their own procurement activities. In this model separate business units within an organization are responsible of their own procurement. Hence, the business units have a profit-loss responsibility of their own in their procurement (van Weele, 2010). Business unit driven organizations usually prefer decentralized procurement model as the users of the procured materials can affect the decision making more and hence their needs are satisfied with higher probability (Iloranta & Pajunen-Muhonen, 2012). Secure local supply and overall internal satisfaction are also achieved more easily by these organizations due to the close buyer-seller relationship in the local business community. Hence, decentralized procurement or purchasing model supports local approach in procurement (Lysons & Farrington, 2012). Consequently the great benefit of decentralized

model is that the procurement is executed in terms of supporting the organization's key business as well as possible.

#### **A. Advantages of decentralized procurement**

i. **Better communication and coordination** between procurement and operating departments, benefiting from user expertise and minimizing maverick buying by users. In centralized procurement functions, ICT mechanisms may have to be highly developed to facilitate regular contact and data-sharing with internal customers.

ii. **Customer focus.** Buyers are closer to internal and external customers, so they can develop a better understanding of user needs and problems, and a big picture business focus, rather than a parochial identification with their own functional objectives. This may also help to keep procurement outward-focused, creating a culture open to learning and change.

iii. **Quicker response** to operational and user needs and environmental changes and problems by local buyers who are close to the scene of operations.

iv. **Knowledge and relationships with locally based suppliers.** There are advantages in sourcing from short distances such as reduced transport cost and environmental impacts; reduced transport risks and delivery times; the ability to personally appraise and monitor suppliers; and the ability to negotiate and resolve disputes face-to-face (Iloranta & Pajunen-Muhonen, 2012).

v. **Smaller purchase quantities:** sacrificing economies of scale, but reducing costs and risks of holding inventory, and possibly supporting social sustainability policies and innovation (by enabling small, local suppliers to bid for contracts).

vi. **Accountability:** divisional managers can be held accountable for performance only if they have genuine control over operations which is not the case if procurement has been taken out of their hands.

vii. **Freeing central procurement units** to focus on higher-level, value-adding tasks.

## **B. Disadvantages of Decentralized Procurement**

According to Iloranta & Pajunen-Muhonen (2012), some of the disadvantages of the decentralized procurement system are:

- Procurement volumes are scattered and negotiation leverage is lost with suppliers
- Suppliers' contract, procurement prices and conditions are different in separate business units. As a result of overlapping work
- Difficulty of standardization
- Difficult to develop procurement expertise
- Total cost of procurement on enterprise level are difficult to perceive and control
- Main stress is the use of local suppliers; global opportunities are hard to utilize

### **2.1.4.3 Hybrid systems**

Procurement and supply chain activities may be centralized across a spectrum from highly centralized to highly devolved (Lysons & Farrington, 2012). Centralized procurement: procurement strategy, policy, systems and standards are controlled centrally and all procurement activities are also carried out centrally. This may be suitable where the items required by each strategic business unit or plant are largely the same. Co-ordinated devolved procurement: procurement strategy, policy, systems and standards are controlled centrally; procurement of items common to more than one strategic business unit are usually centralized; but other operational procurement activities are carried out within the SBUs. This may be suitable where SBUs or plants produce widely dissimilar products. Consultative centralized procurement: procurement activities-both strategic and operational are devolved to SBUs which merely take guidance and advice from a centralized procurement function.

The main benefit of using a hybrid procurement operational structure approach is that it provides the opportunity to combine the key features of centralized and decentralized structures although they differ in the extent to what is centralized and what is decentralized (Monczka et al, 2010). The hybrid procurement is applicable if local sourcing preferences are vital parallel to exploiting the strengths of central planning, which can be referred to as centralized pricing with decentralized procurement (Karjalainen, 2010). The hybrid operating model involves a central structure of activities up to and including the completion and management of the central

contract/framework agreement for the whole organization to use, meanwhile, the tasks after contracting (e.g. ordering) are considered to be decentralized to local units (Karjalainen, 2010). The most common hybrid procurement structure has centralized strategic design, a coordination of major spending categories and some support activities, with decentralization of most of the actual procurements. This allows all of the procurement activities to be co-ordinated with a free flow of information through the internet, intranets, and information sharing systems (Monczka *et al*, 2010).

### **2.1.5 Centralized purchasing organization**

Centralization refers to a powerful central purchasing office, which specifies and buys on behalf of the divisions, and here he makes the assumption that the purchasing office has the expertise, records and political power (Cousins *et al*, 2008). According to Monczka *et al* (2010), centralization of decision making is managing relationships with critical suppliers; developing electronic purchasing systems; implementing companywide best practices; negotiating company-wide supply contracts; managing critical commodities, and the standardization of purchasing processes takes place in strategic sourcing. It is in centralization that a platform to co-ordinate plans is provided, by linking together corporate, business, and purchasing strategies.

Centralization in public procurement is driven by the costs for running a highly regulated tendering process, and any departures from procedures can open the door for suppliers to complain to the court (Gelderman, Ghijzen & Brugman, 2006). Thus, attempting to avoid repeating a burdensome process has mainly driven centralization in public procurement, and the expected volume discounts from pooled purchases (Karjalainen, 2011). Further, volume discounts can only be negotiated and maintained when purchasing volumes of all or most units are pooled under joint contracts; a favorable framework agreement would be negotiated by a centralized purchasing department, even though ordering would still occur at a local level (Karjalainen, 2010). Here, Karjalainen (2010) suggested that the centralization tasks referred to at least, supplier management and contract handling located at corporate headquarters .He claimed that all three sources of synergies, economies of scale, information and learning, and process could all be gained by the use of centralized framework agreements.

## 2.1.6 Factors Affecting Procurement Structure

The factors that influence the selection of procurement structure divided into contingency theory, information and power, and procurement related factors.

### 2.1.6.1 Contingency theory

According to van Weele (2005), Procurement structure is very much dependent on organization distinctiveness and situational factors. One of the core lessons of the contingency theory is that there is no single optimal way to structure organizations rather it is dependent on some distinctiveness of the organizations situation (Carlisle, 1974).

According to this theory, there is no organizational structure that is most effective for all organizations (Karlsen & Tollefsen, 2009). It is paramount that organizations all structure that is contingent to its situation. This situation can influence the selection of the organizational structure as it can be affected by a number of contingency factors. A number of contingency factors include are task uncertainty, technology, environmental change, technological change, size and strategy. Donaldson (2001) reduced the factors to size, task uncertainty and task interdependence (Karlsen & Tollefsen, 2009).

The size is related to the number of employees of the organization. The size as contingency factor affects the organizational structure in some way. When an organization has a small number of members, the top manager has capacity and enough overview of the organization and the decision authority rest entirely on him/her. As a result simple centralized structure is satisfactory. But as the organizations grow this simple structure is replaced by a bureaucracy featuring a tall to bottom extensive specialization. So, this situation makes decentralized system close to necessity. The internal structural complexity and length of hierarchy of centralized system makes it infeasible (Donaldson, 1999).

The task uncertainty is caused by environment and technological changes. Task with low uncertainty is most efficiently performed in a centralized operational system. This is because it allows efficient planning and coordination. For high task uncertainty companies can rely more on ad hoc solutions (Karlsen & Tollefsen, 2009). Firm should reduce formalization and have more decentralized structure.

The task interdependence is referred to the activities of the organization in relation to different sub units that are connected to each other. The divisional structure according to Donaldson

(2001) is a decentralized structure. This is because central division cannot coordinate the interdependent activities. Nevertheless, the higher the task interdependence, the more centralized the coordination (Donaldson, 2001).

Donaldson (1999) stated that the characteristics of the task interdependence reflect the influence of the environment in which the organization is located. In line with this, organizations need to fit to the characteristics of the environment in which it is located.

#### **2.1.6.2 Information and Power Related Factors**

The relationship between a principal (e.g. centralized headquarter) and an agent (e.g. division or business unit) may influence the choice of organizational structure. According to Carlisle (1974), one of the advantages with a decentralized structure is that people are more productive when they have more freedom and control over their jobs. However, with a decentralized structure, there is a risk of “individuals who does not accept the organizations goals” which would alter some of the advantages of a decentralized structure. Vagstad (2000) argued that the choice of organizational structure should be determined by the trade-off between two important factors: bureaucracy cost and agency cost. The logic is that a centralized structure is costly and often not very efficient due to bureaucracy costs; costs that are related to the fixed costs of the daily operation of the department. At the same time, costs related to decentralized structure may be agency costs; costs that arise as a result of conflicting objectives between the principal and the agent. Hence, when the bureaucracy costs are lower than the potential agency costs, a centralized structure may be favored, while a decentralized structure may be favored when the potential agency costs is lower than the bureaucracy costs.

#### **2.1.6.3 Procurement Related Factors**

Different types of procurement situations are said to have different demands on the procurement structure (Gadde & Håkansson, 2001). Several purchasing related factors affect the decision of centralization or decentralization. Several authors mention product type as a central factor affecting procurement structure and procurement strategy (van Weele, 2005).

High volume products with a predictable usage pattern calls for centralization, in order to reap cost benefits of aggregated purchase whereas products possessing some specific characteristics should be handled in a decentralized procurement department (Corey, 1978). These products and

characteristics of specific products include: standard products with need for local service that are ordered in small amounts and subject to unpredictable usage pattern and immediate need, products that are subject to high engineering involvement, products with high need for coordination of the purchased parts with production schedules, and products with unique use requirements.

A model developed by Peter Kraljic (1983) classifies four different product types: Non-critical items, leverage items, bottleneck items and strategic items. According to Kraljic (1983), non-critical items may be handled at a decentralized level, due to the low strategic importance and the low supply market complexity while a centralized approach may be favorable in order to achieve economies of scale, due to standardized products. Leverage items may be handled at both a decentralized level and centralized level. A decentralized level is favorable due to the low complexity of the market, while a centralized approach is favorable in order to strengthen and to exploit the purchasing power. Bottleneck products may be handled at a decentralized level, but there is a need for centralized coordination in order to ensure supply of products that are subject to production scarcity. Strategic items should be handled at a centralized level to ensure supply of products that are of high strategic importance and are subject to market complexity.

Geographical location is another important factor affecting whether to centralize procurement or not. International negotiations may call for special knowledge and skills, which may be difficult to handle by a decentralized organization. Thus it should be handled at a centralized level in the organization (Corey, 1978). On the other hand, it may be difficult to achieve efficient coordination across international and cultural borders. As a consequence many firms are utilizing a decentralized structure (Van Weele, 2005).

The greater the commonality of the products being purchased, the more benefits can be obtained by having a centralized structure (van Weele, 2005). Supply market characteristics are another important factor in relation to the structure of purchasing strategies. When the supply market is characterized by one or a limited number of suppliers, which often give the supplier an advantage due to strong bargaining power, it may be necessary to utilize a centralized procurement or purchasing function in order to achieve a better negotiation position (van Weele, 2005).

The other relevant factor that affect in deciding on the procurement structure is saving. By utilizing a centralized procurement function one is able to accumulate the quantity in order to

reap savings potential (van Weele, 2005). Aggregating procurement activities through centralization may be an effective way of achieving large cost savings, especially related to standardized parts, supply items and non-product purchases (Corey, 1978).

The expertise required and the efficient use of personnel may also affect the organizational structure (van Weele, 2005). When specific expertise is required for effective buying, it may be useful to have a centralized purchasing approach, since it may be difficult to provide the necessary expertise in several decentralized departments. Centralization improves the efficient use of scarce managerial resources (Corey, 1978).

The other factor that affects the structure of the purchasing function is price fluctuations and political climate. If material prices are highly sensitive to the political and economic climate, a centralized procurement approach may be efficient (Van Weele, 2005). A centralized approach may be favorable in coping with shortages of supply as a consequence of political and governmental regulations. This is due to the fact that a centralized procurement function may identify alternative sources of supply, negotiate contracts, and allocate the resources within the organization (Corey, 1978).

In situations where the customers dictate which products should be purchased, a centralized approach will not be needed because it will not be possible to reap any procurement synergies across the entire organization, as long as there are strong local restrictions on what needs to be purchased (van Weele, 2005).

In general, several factors might affect the choice of purchasing structure. However, there is not a clear-cut decision between centralization and decentralization, and in most cases, companies rely on a combination of both; companies usually “try to reap the benefits of one organizational form and then minimize its corresponding disadvantages” (Gadde & Håkansson, 2001).

### **2.1.8 Factors Affecting Public Procurement Effectiveness**

**i. Procurement plan implementation-** Procurement planning is one of the primary functions of procurement with a potential to contribute to the success of public institution’s operations and improved service delivery (Basheka, 2008). Procurement Planning entails the identification of what needs to be procured, how the organizations needs can best be met, the scope of the goods, works or services required, what procurement strategies or methods to be deployed, setting the time frames, and the accountability for the full procurement process.

To accomplish the organization's objectives, the most important tool is effective procurement plan. Procurement plan that aligns to the objective of the organization programs and budgetary process can expedite the accomplishment of the goals. It is one of the pre-requisites for the effectiveness and efficiency of the procurement function, thus leading to the ultimate success of the organization. (Namusonge et al., 2013)

Effective procurement planning enables the organization and its staff to work smoothly to achieve the organization's goals with the right quality and quantity of inputs in place while ineffective procurement planning may result in failure to achieve those goals, and causing damage to the credibility of the organization (UN, 2006).

**ii. Employee's competence-** Saunders (1997) believed that successful functioning of organizational structures and effective operation of planning control systems is dependent on the quality and ability of staff employed. Multi-skilling provides employees with a variety of skills and should be developed extensively.

Leenders and Fearon (2002) noted that the large number of items, huge monetary volume involved, need for an audit trail, severe consequences of poor performance, and the potential contribution to effective organizational operations associated with the procurement function are five major reasons for developing a sound, professionally managed procurement system. They further argue that qualifications are crucial for value-based management which requires employees to assess and improve processes while contributing to team performance. In addition, qualifications enhance staff ability to perform, enabling them to make better decisions, work as a team, and adapt to change, while increasing efficiency, quality, productivity and job satisfaction.

**iii. ICT adoption-** Saunders (1997) reckoned that personnel in procurement are, in a sense, information processors. They receive, analyze, make decisions and distribute information in order to manage the flow of goods and services in the SC. ICT is an enabler for information sharing which organizations in the procurement system can use for eliminating bloated inventory levels caused by cumulative effect of poor information cascading up through a SC. ICT shortens information processing time and tremendously improves procurement performance. Process integration can enhance procurement performance. ICT provides new ways to store, process, distribute and exchange key information with customers and suppliers in the entire procurement system.

Use of ICT in procurement help in coordination of business processes, both within the organization and between a purchaser and existing suppliers. Examples include electronic purchase-order systems, online catalogues and online linkages with suppliers to exchange information regarding fulfillment activities (Johnson & Leenders,2004). Managers are attracted to the benefits of improved productivity, faster response times and an overall perception of low risk in implementation (Flynn, 2003). Technological developments in information systems and information technologies have the potential to facilitate coordination in transporting firms, and this, in turn, allows the virtual integration of the entire procurement process. Technology provides tools to enable organization operations to consistently procure the best-value materials and services, using unified internet-based sourcing tools and streamlined support for complex negotiations (Williams, 2005).

**iv. Operational procedures/management-** Procedures are operating instructions detailing functional duties or tasks. According to Saunders (1997), Public ownership imposes obligations with regard to public accountability, leading to prescribed procedures and policies. All steps of the procurement cycle must be properly documented with each step being approved by the designated authority. Baily, Farmer, Jessop and Jones (2005) argued that public procurement procedures tend to be characterized by high levels of bureaucracy independent of order value; poor communications and focusing on unit price rather than long-term relations. Procurement perceptions are affected by the existing organizational structure, quality of internal communication system, past experience and resources available. A procurement policy may define the approval process for contracts of varying cost levels and may include role of purchasing, conduct of procurement staff, buyer-seller relationships, and operational issues. Without elaborate and effective procurement procedures government policy objectives would fail to meet the desired objectives.

## 2.2 Review of Empirical Studies

There have been several studies which have been conducted to assess the effectiveness of public procurement.

Mohammed (2014) has conducted a study on “Effectiveness of Centralized Procurement Systems in Public Sector Enterprises of Bangladesh: A Focus on Economic Census 2013.” The

effectiveness was assessed on the basis of quality of materials purchased, economy of scale achieved and improvement of lead time. In this study, the quality and price have significantly improved in centralized system but the lead time of the procurement has deteriorated. It means that although right quality of goods was procured at right price, they could not be procured in right time. Since the findings of the study reveal that the present process of purchasing is effective for the economic census with a problem in lead time which should be addressed the researcher recommended a hybrid system as a more effective system.

Maglo(2016) in his study in title with “Assessment of Centralized Purchasing in Government Institution: A case Study of Social Security and National Insurance Trust (SSNIT Koforidua Area Office)” in Ghana has tried to evaluate the effects of centralized purchasing operations of SSNIT Koforidua area office and find out the challenges facing the centralized purchasing system of the institution. In the study qualitative research method and purposive sampling method was employed. The results of the study indicate that the operation of the centralized purchasing unit of SSNIT was effective because, centralized purchasing helped SSNIT to make saving on operational cost, enabled SSNIT to engage suppliers to provide service cheaper and cost reduction. Some of the challenges established by this study were bureaucratic processes hindered the capacity of procuring staff in the implementation of centralized purchasing; ineffective legal framework implementation affects the centralized purchasing and change in technology in purchasing had challenges to the implementation of centralized purchasing. Majority of the respondents were in support of area proximity decentralization of purchasing. It is therefore recommended that area proximity decentralization at study area should be put in place to reduce bureaucracy, delays in purchasing processes.

Roman(2017) in her study to assess the regulatory framework, practices and challenges of public procurement in selected public organizations in Ethiopia has investigated some public procurement performances were found to be noncompliance with the public procurement rules and regulations. The cause for this is inefficiency, nontransparent procurement processes, and lack of knowledge of rules and regulations. Hence, it needs commitment from responsible government authorities to improve those specific areas of deficiencies’ in public procurement practice and resolve challenge for sound public procurement practice.

Sofoneyas (2016) in his master thesis entitled with “The Impact of Organizational Structure on the Implementation of Public Procurements Policy: The Case of Pubic Procurements Units in

Some Selected Public Organizations of the Federal Government” has tried to examine the impact of organizational structure on administrative efficiency in the case of some selected public organizations of the federal government. He found that administrative structure has significant positive correlation and impact on implementation of policy of public procurement (administrative efficiency). But, FPPA structure has not strong appeals mechanism for complaints and procedures to enforce the outcome of the dispute resolution process, FPPA structure is not evaluated procurement plan performance and carry out annual procurement audits in all entities, procurement performance audits carried out by FPPA is limited, promoting a whistle blowing as an administrative culture is weak, a federal complaints board which is not independent of the FPPA, the public procurement compliance is not enhanced by media. These hinder administrative efficiency of the public procurement units.

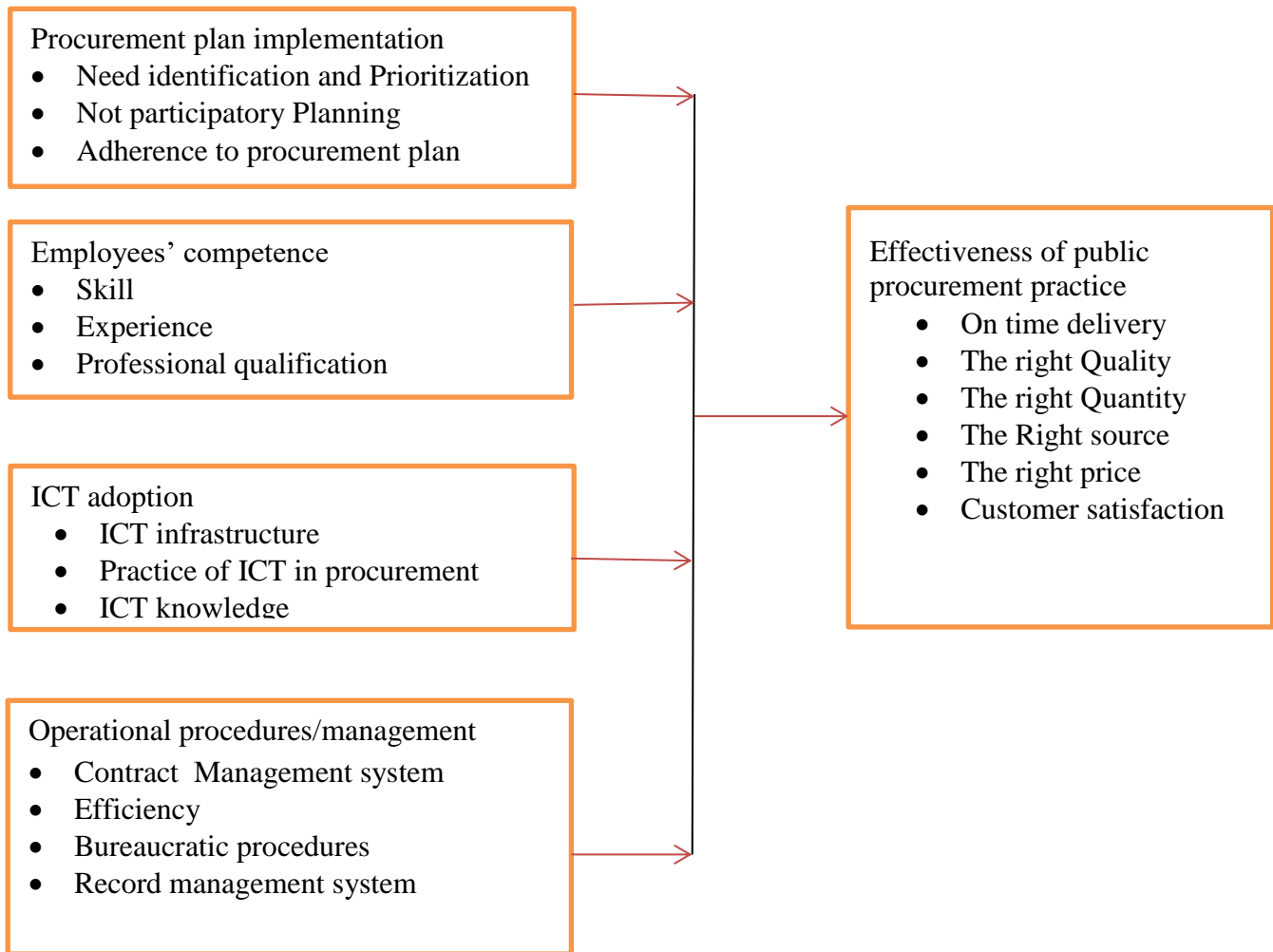
## **2.3 Conceptual Framework**

Effectiveness of public procurement practice can be measured on different parameters. Some of the parameters to be used in assessing the effectiveness of the procurement practice include on time delivery, satisfied customers, right price, quality and quantity goods, and service and works. The researcher takes these for dependent variables.

On the other hand the independent variables that determine effectiveness of the centralized procurement system to be evaluated includes the procurement plan implementation, employee’s competence, ICT adoption and operational procedures/management.

The conceptual framework is summarized as follows;

**Figure2. 1 Conceptual Framework**



Independent Variables

Dependent Variables

**Source: Japheth Ocharo Kiage, (2013) with some modification**

## Chapter Three

### Methodology

#### 3.1 Description of the study area

The study area of PPPDs is Addis Ababa which is the capital city of Ethiopia and also the diplomatic capital of Africa, housing numerous embassies and international organizations, including the United Nations Economic Commission for Africa and the African Union. Addis Ababa is founded in 1886 after the coronation of emperor Minilik II as king of kings in 1889 and became the political, administrative and religious hub of the country (Garreston, 2000). It is the largest city in Ethiopia, with a population of 3,384,569 according to the 2007 population census with annual growth rate of 3.8%; all of the population is urban inhabitants.

Addis Ababa lies at an altitude of 2,300 meters (7,500 ft.) and is a grassland biome, located at 9°1'48"N 38°44'24"E Coordinates: 9°1'48"N 38°44'24"E. The city lies at the foot of Mount Entoto and forms part of the watershed of the Awash. The area of the city is 204.7 square miles (530.21 square kilometers). The city is divided into 10 sub cities. The public bodies and suppliers are randomly scattered in different parts of the city.

#### 3.2 Research approach

The researcher used quantitative data. The quantitative approach involves the generation of data in quantitative form which can be subjected to rigorous quantitative analysis in a formal and rigid fashion. The primary technique for collecting the primary quantitative data used a self-developed questionnaire containing self-assessment items measured on the 5-point Likert type of scales strongly disagree, disagree, neutral, agree and strongly agree.

#### 3.3 Research design

The research design is descriptive and explanatory. The design used to describe and see causal relationship between the independent variables with dependent variable. Descriptive research design is a scientific method of investigation in which data is collected and analyzed in order to describe the current conditions, terms or relationships concerning a in a certain specific field Problem (Adams *et al*, 2007). Descriptive research helps to describe the state of affairs as it

exists at present. It is used to describe the characteristics of the independent variables. This helps to obtain information concerning the current status of the phenomenon to describe what the current situation is with respect to the variable of the study. On the other hand explanatory research describes the phenomena as well as explains why behavior is the way it is. This research has applied explanatory type of research since it attempts to describe the relationship between independent (factors affecting centralized procurement system) and dependent variables (effectiveness of organizational operations).

In this case the researcher used close ended structured questionnaire to describe the respondents view about the issue i.e. their view about the effectiveness of public procurement system and test the results using simple regression method.

### **3.4 Population and sample**

The population of this research was employees which are directly or indirectly involved in procurement process and contract administration of 188 federal budgetary organizations which are benefited from PPPDS procuring goods and services. The sample frame of this study was experts and managements in procurement and contract management directorate of federal budgetary organizations.

The sampling technique used for this research is both probability and non- probability sampling technique. To determine the sample size of respondents, the researcher has employed cluster sampling and lottery method. The federal budgetary organizations were clustered in to 29 based on their organizational arrangements. From each cluster one element was selected using lottery method. Then, proportional quota sampling method has been employed to determine the number of respondents from each selected organization. The number of respondents from each selected organization was obtained by calculating the number of procurement staff divided by total sample size and multiplied the result by hundred has gave the number of respondents from the organization.

The researcher took sampling technique by determining the sample proportion success and not success based on the experience from previous survey research response rate. According to Patrick (2003), the return or success rate 50% is adequate, 60% response rate is good and 70% rate or higher is very good. The researcher used for this study was 75% response rate and remaining 25% non-response rate, and sample size was determine at 95% confidence level.

Sample size is calculated based on below formula (Kothari, 2004);

$$n = \frac{z^2 \cdot p \cdot q \cdot N}{e^2 (N - 1) + z^2 \cdot p \cdot q}$$

Where, p = proportion of success = 75%

q = proportion of fail = 25%

n = sample size,

z = confidence level = 1.96

e = standard error = 5%

N= total population = 189

$$n = (1.96^2(0.75)(0.25)(189))/(0.05^2(189 - 1) + 1.96^2 * (0.75)(0.25))$$

n= 114 respondents.

This sample size was distributed for each selected organizations by using simple proportional calculations.

**Table3. 1 Sample size in each selected organizations**

<b>No.</b>	<b>Head Organization</b>	<b>Selected Organization</b>	<b>Number of Population</b>	<b>Sample size</b>
1	House of people's representative	Ethiopian press Enterprise	3	2
2	Prime Minister Office	Ethiopian Civil Service University	6	5
3	Anticorruption & Ethics Commission	Anticorruption & Ethics Commission	4	3
4	House of Federation	House of Federation	2	2
5	President Office	President Office	5	4
6	National Electoral board office	National Electoral board office	3	2
7	Federal Auditor	Federal Auditor	5	4
8	Human Right Commission	Human Right Commission	3	2
9	Office of Ombudsman	Office of Ombudsman	1	1
10	Ministry of Peace	Immigration	2	2
11	Federal Attorney	Federal Attorney	6	5
12	Ministry of Defense	Ministry of Defense	9	8
13	Ministry of Foreign Affairs	Ministry of Foreign Affairs	6	5
14	Ministry of Finance	Ministry of Finance	9	7
15	Ministry of Revenue	Ministry of Revenue	9	7
16	Ministry of Innovation & Technology	Ministry of Innovation & Technology	5	4
17	Plan and Development Commission	Central Statistical Agency	8	7
18	Ministry of Agriculture	Ethiopian Coffee & Tea Authority	5	4
19	Water, irrigation & Energy Minister	Ethiopian Grand Renaissance Dam	2	2
20	Ministry of Trade & Industry	Ministry of Trade & Industry	3	3
21	Ministry of Mining and Energy	Ministry of Mining and Energy	5	4
22	Ministry of Transport	Ministry of Transport	3	3
23	Urban dev't & Construction minister	Urban dev't & Construction minister	8	7
24	Ministry Of Education	Ministry Of Education	7	6
25	Higher Education. & science Minister	Technical & vocati. training Agency	3	3
26	Ministry of Culture and Tourism	Ministry of Culture and Tourism	5	4
27	Ministry of Health	National Blood Bank Service	2	2
28	Ministry of Social Affairs	Private Sectors ESSA	4	3
29	Women, Children & Youth Minister	Women, Children & Youth Minister	4	3

### **3.5 Data sources**

There are two kinds of data for the research to be undertaken, primary and secondary data. Primary data was collected using quantitative data collection methods from structured questionnaires while the secondary data could be gathered from government procurement proclamation, procurement directives and manuals, website, procurement bidding document, and public procurement agency report, article journals and books. For this research primary data was collected from 99 respondents working in the procurement department of 29 federal budgetary governmental organizations that benefit from the centralized procurement system operated by the PPPDS. This was considered appropriate because of their knowledge and experience concerning centralized procurement allows finding the real data.

### **3.6 Data collection procedures**

Primary data source was used to collect relevant data. Questionnaire was used for collection of primary data. Questionnaires were administered to procurement and supply chain professionals and other management staff of the selected government organizations to solicit information on the research topic. The researcher administered questionnaires to the target respondents and collected them thereafter. After the questionnaires were filled and received, the researcher has coded and cleaned them, then fills the data into the Statistical Package for Social Sciences (SPSS).

### **3.7 Ethical consideration**

The researcher tried to assure confidentiality to the respondents and described that the study will be made for purpose of academic goals. In order to secure the selected participants consent, the researcher described all important details of the study, including its aim and purpose, methods and uses of the research. Respondents assured that the information they give will not be used for any other purpose except academic work. On the other hand the researcher acknowledged all sources of information he used from other scholars.

### **3.8 Data analysis**

After gathering all the questionnaires administered to procurement and supply chain professional and management staffs, the completed questionnaires were compiled, sorted, classified and

entered into the computer analysis using the Statistical Package for Social Scientists (SPSS-20). Data analysis was performed using descriptive and inferential statistics. Descriptive statistics was used to describe different characteristics. Frequencies and percentages were used to analyze general information about respondents and frequency, mean and standard deviations were used to describe about aspects of factors that affect effectiveness of centralized procurement and the status of effectiveness of centralized procurement practices. The data were presented by using statistical tools like tables, figures, bar charts and others.

Inferential statistical analysis, correlation and multiple linear regression analysis were used to determine the relationship between the independent variable and dependent variable. The variables were regressed using a model and all coefficients were interpreted. The study used the following multiple regression model to establish the statistical significance of the independent variables on the dependent variable.

$$Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \epsilon$$

Where: Y = Dependent Variable (Effectiveness of Centralized Public Procurement Practice)

X1 – Operational management

X2 – Procurement plan implementation

X3 – Employee's competence

X4 – ICT adoption

In the model,  $\beta_0$  = Constant,  $\beta_1$  to  $\beta_4$  = Regression coefficients represent the mean change in the dependent variable for one unit of change in the independent variable while holding other independent variables in the model constant and  $\epsilon$  = Error term which captures the unexplained variation in the model.

### **3.9. Validity and Reliability**

Validity refers to the extent to which a test or measurement measures what we actually wish to measure (Kothari, 2004). To check the validity, the researcher first reviewed an extensive literature to develop questions for the survey. The instrument and research method also revised and commented by professional advisor and expertise before going to data collection. In addition, the objective of the research is revealed and sample questionnaire was administered to procurement and contract administration officers working in public sector. Feedback obtained from the officers was incorporated and the final questionnaire was developed.

Reliability refers to the extent to which the data collection techniques or analysis procedures will yield consistent findings (Saunders et al, 2007). In this research the most popular test of inter-item consistency reliability that is the Cronbach's coefficient alpha was used as part of the reliability test to assess how valid the results were and should produce similar generalized results if the sample size were increase. The Alpha value ranges from a maximum of 1.0 for a perfect score to minimum of zero. According to William and Barry (2010) scales exhibiting a coefficient alpha between 0.80 and 0.96 are considered to have very good reliability, between 0.70 and 0.80 are considered to have good reliability, and alpha value between 0.60 and 0.70 indicates fair reliability and when the coefficient alpha is below 0.60, the scale has poor reliability. The Cronbach's alpha value of each dimension of independent variables (factor affecting centralized procurement system) and dependent variable (effectiveness of centralized procurement system) is listed in below. As indicated in table 3.2 below all Cronbach's alpha value is greater than 0.7, which means all items are reliable and data has internal consistency and able to be accepted for further analysis.

**Table3.2 Cronbach's Alpha Summary**

<b>No.</b>	<b>Variables</b>	<b>Cronbach's Alpha Value</b>	<b>Items Cronbach's Alpha</b>
<b>1</b>	Procurement plan implementation	0.785	5
<b>2</b>	Employees' competence	0.886	5
<b>3</b>	ICT adoption	0.732	4
<b>4</b>	Operational procedures/management	0.805	5
<b>5</b>	Effectiveness of centralized public procurement practice	0.745	6

Source: Survey Result, 2019

The Cronbach's Alpha range value is between 0.732 and 0.886. Therefore, all variables are acceptable for further analysis.

## Chapter Four

### Data Analysis, Presentation and Interpretation

#### 4.1 Response Rate

In order to conduct this study a total of 114 questionnaires were distributed to procurement and supply chain professionals and other management staff that work in 29 selected federal budgetary government organizations.

Out of these distributed questionnaires, 99 were successfully filled and returned. The response rate of all the questionnaires stood at 86.8%. Therefore, the analysis is done on the 86.8% of response rate which is considering sufficient to conduct the study.

**Table4.1 Response Rate**

<b>Response Rate</b>	<b>Frequency</b>	<b>Percentage</b>
Responded	99	86.8
Not Responded	15	13.2
Total	114	100

Source: Survey Result, 2019

#### 4.2 Profile of Respondents

In this section, the profile of respondents who involved in the research was summarized on the tables here below and the frequencies and percentages are calculated and described. These variables include sex, age, educational level, profession, position and years of experience of the respondents.

**Table4.2 Summary of the Profile of Respondents**

Profile of Respondents		Frequency	Percent	Cumulative Percent
Sex	Male	69	69.7	69.7
	Female	30	30.3	100.0
	Total	99	100.0	
Age	less than 25	9	9.1	9.1
	25-30	13	13.1	22.2
	31-35	31	31.3	53.5
	35-40	25	25.3	78.8
	above 41	21	21.2	100.0
	Total	99	100.0	
Educational Level	Certificate	2	2.0	2.0
	Diploma	6	6.1	8.1
	Degree	78	78.8	86.9
	Master and above	13	13.1	100.0
	Total	99	100.0	
Profession	Accounting	20	20.2	20.2
	Accounting & finance	1	1.0	21.2
	Economics	10	10.1	31.3
	LSCM	2	2.0	33.3
	Management	31	31.3	64.6
	Procurement	34	34.3	99.0
	Urban Management	1	1.0	100.0
	Total	99	100.0	
Position	Director	18	18.2	18.2
	Team leader	13	13.1	31.3
	Senior expert	23	23.2	54.5
	Expert	22	22.2	76.8
	Junior expert	23	23.2	100.0
	Total	99	100.0	
Experience	0-2 years	18	18.2	18.2
	3-5 years	28	28.3	46.5
	6-10 years	26	26.3	72.7
	More than 10 years	27	27.3	100.0
	Total	99	100.0	

Source: Survey Result, 2019

The respondents were asked to mention their sex in the questionnaire. Accordingly 69.7% of the respondents were male and 30.3% were females as shown in table 4.2 above. This implies that majority of respondents were male and the response of respondents are dominated by male respondents.

The respondents were asked to indicate the age category in the questionnaires. The finding reveals that, the majority 31.3% of the respondents were aged between 31 to 35 years, 25.3% between 35 to 40 years, 21.2% of respondents aged above 41, 13.1% of the respondents aged between 25 and 30 and the remaining 9.1% aged less than 25 years as depicted in the Table 4.2 above. This implies that the majority of respondents had practical experience and knowledge of procurement activities.

The respondents were asked to show their highest attained education level. The study revealed that majority of the respondents 78.8% participated in this research were degree holders, while 13.1% of respondents had attained their education up to Master & above and 6.1% of the respondents had achieved diploma level. Only 2% had a certificate level. These findings implied that most of the respondents were qualified to understand the nature of the study problem. The result also indicates that the questionnaire is completed by professional staffs and expected to give valuable response.

The professions of the respondent also have importance in research as people who have different profession may have varying ideas about certain issues. Thus, the respondents were asked to indicate their profession and the result shows 34.3% were procurement, 31.3% of respondents were management, 20.2% of respondents were accounting, 10.1% of respondents were economics, 2% of respondents were logistics and supply chain management and the remaining 1% of each were accounting and finance and urban management in profession.

Further respondents were asked to specify their current positions in the organization as people in different position may have varying level of access to information and experience in different issues. The results of the survey indicates that senior procurement expert and junior procurement expert accounts for 23.2% of the respondents each, 22.2% of the respondents were at expert level, 13.1% were team leader and the rest 18.2% were directors. This shows the majority of respondents are procurement expert and above who have the possibility of better understanding procurement process. It implies that responses are more of professional and based on practical experience.

The overall experiences of respondents were found helpful as people having long experiences may gain varying skill and knowledge in doing things differently. So, respondents were asked to specify their overall experience and the finding reveals that 27.3% of respondents had experience more than 10 years, 26.3% had from 6-10 years, 28.3% of respondents had experience between 3 to 5 years and the remaining 18.2% have experience of less than 2 years as depicted in table 4.2 above. This implies that the majority of the respondents have adequate experience. Thus, it is clear that the experienced respondents could understand the effects of centralized procurement performance on organizational operations and give sufficient and correct information that could contribute to the validity of the study.

### **4.3 Survey Results**

The following descriptive statistical analysis shows the conceptual framework adopted for this study. Particularly, the analysis demonstrates the research questions, which are effect of procurement plan implementation, employee's competence, ICT adoption and operational procedures or management. To make discussions the study used frequency, mean, standard deviations and percentile. For these discussions procurement workers at different position in the federal budgetary government organizations were asked to indicate the extent of factors that affects central procurement system on the effectiveness of organizational operations in five scales (1= strongly disagree, 2= disagree, 3= somewhat, 4= agree and 5=strongly agree).

#### **4.3.1 Procurement plan implementation effect on centralized procurement system**

Procurement planning is one of the pre-requisites for the effectiveness and efficiency of the procurement function, thus leading to the ultimate success of the organization. It is the most important tool to accomplish the organization's objectives. Procurement planning will make sure that the employees can effectively and efficiently mitigate the challenges affecting procurement process, and it significantly reduces the delay in the process. (Namusonge *et al*, 2013).

**Table4.3 Procurement plan implementation**

No .	Statement	Scale	Frequ ency	Perce nt	Cumulativ e Percent	Mean	SD
1	Procurement plan can facilitate procurement activity according to user need	Strongly disagree				4.03	0.99
		Disagree	7	7.1	7.1		
		Somewhat	12	12.1	19.2		
		Agree	31	31.3	50.5		
		Strongly agree	49	49.5	100.0		
		Total	99	100.0			
2	Procurement need is planned with full specification and submit to procurement unit on time	Strongly disagree	6	6.1	6.1	3.32	1.23
		Disagree	24	24.2	30.3		
		Somewhat	22	22.2	52.5		
		Agree	26	26.3	78.8		
		Strongly agree	21	21.2	100.0		
		Total	99	100.0			
3	Training about how to prepare procurement plan is provided	Strongly disagree	2	2.0	2.0	3.34	1.05
		Disagree	19	19.2	21.2		
		Somewhat	39	39.4	60.6		
		Agree	21	21.2	81.8		
		Strongly agree	18	18.2	100.0		
		Total	99	100.0			
4	Materials procured matches with your plan and specification	Strongly disagree	2	2.0	2.0	3.47	1.1
		Disagree	21	21.2	23.2		
		Somewhat	24	24.2	47.5		
		Agree	32	32.3	79.8		
		Strongly agree	20	20.2	100.0		
		Total	99	100.0			
5	Procurement plan is prepared through the involvement and participation of all end users	Strongly disagree	2	2.0	2.0	3.37	1.18
		Disagree	31	31.3	33.3		
		Somewhat	14	14.1	47.5		
		Agree	32	32.3	79.8		
		Strongly agree	20	20.2	100.0		
		Total	99	100.0			

Source: Survey Result, 2019

The study sought to evaluate the effect of procurement plan implementation on centralized procurement system effectiveness for organizational operations. According to the above table 4.3 the respondents indicated that procurement plan can facilitate procurement activity according to user need. Procurement plan can facilitate the procurement activity to a very great extent in the

organizations as this was reported by 39.4% of the respondents strongly agree and 35.4% of the respondents reported agree and 14.1% somewhat extent respectively which had a mean of 4.03. Only 11.1% of the respondents disagree on this issue while none of them strongly disagree.

Regarding to planning of procurement need with full specification and submit to procurement unit on time about 24.2% of the respondents disagree and 6.1% of the respondents strongly disagree while 21.2% strongly agree, 26.3% agree and 22.2% somewhat with a mean value of 3.32 and a standard deviation of 1.23. This mean 3.32 which is less than agree (4) shows that there is limitation in planning the procurement need with full specification and submit on time for the procuring unit. This would have effect on the effectiveness of centralized procurement system.

The study further wanted to find out whether employees have received any training about how procurement need planning is prepared. The findings revealed that only 39.4% of the respondents (18.2% strongly agree and 21.2% agree) have took training about how to prepare procurement need plan. Others 39.4% of the respondents rates somewhat and 21.2% of the respondents have not got any training of preparation of procurement need plan. This result indicates that a considerable number of staffs did not take training and this might cause inefficiency in the preparation of procurement need plan properly.

The study also sought to find out whether the materials procured matches with the plan and specification of the end user. The result of the survey indicates that 20.2% of the respondents strongly agreed, 32.3% agree, 24.2% somewhat, 21.2% disagree and 2% of them strongly disagree with a mean of 3.47 and a standard deviation of 1.1. These results indicate that majority of the procured materials matches with the procurement need plan but still there are materials that could not match with the plan.

Furthermore the study also sought to assess whether procurement plan is prepared through the involvement and participation of all end users. The result indicates that 52.5% (sum of agree and strongly agree) of the respondents indicate that procurement planning is prepared with the involvement of all end users. 14.1% of the respondents rate somewhat while 33.3% of the respondents (31.2% disagree and 2% strongly disagree) did not prepare procurement plan with the involvement and participation of all end users.

### 4.3.2 Employee's Competence effect on Centralized Procurement Effectiveness

Competent staff are effective, efficient and provide solutions to the procurement problems while incompetent staff would be ineffective and inefficient thus contributing to poor performance for the company (Kiage, 2013).

**Table 4.4 Employee's competency**

No .	Statement	Scale	Frequ ency	Perc ent	Cumulative Percent	Mean	SD
1	Procurement staffs have recognized professional qualification or competence	Strongly disagree	4	4.0	4.0	3.45	1.13
		Disagree	18	18.2	22.2		
		Somewhat	26	26.3	48.5		
		Agree	31	31.3	79.8		
		Strongly agree	20	20.2	100.0		
		Total	99	100.0			
2	Procurement staffs have the skill to procure complex and special items	Strongly disagree	5	5.1	5.1	3.32	1.1
		Disagree	19	19.2	24.2		
		Somewhat	28	28.3	52.5		
		Agree	33	33.3	85.9		
		Strongly agree	14	14.1	100.0		
		Total	99	100.0			
3	Procurement staffs have the ability to understand users need, supply markets and suppliers	Strongly disagree	9	9.1	9.1	3.45	1.01
		Disagree	12	12.1	21.2		
		Somewhat	35	35.4	56.6		
		Agree	30	30.3	86.9		
		Strongly agree	13	13.1	100.0		
		Total	99	100.0			
4	Procurement staffs have the ability to negotiate with users and suppliers	Strongly disagree	6	6.1	6.1	3.3	1.09
		Disagree	17	17.2	23.2		
		Somewhat	30	30.3	53.5		
		Agree	33	33.3	86.9		
		Strongly agree	13	13.1	100.0		
		Total	99	100.0			
5	Procurement staffs have ability to apply public procurement principles and prepare tender and contract documents on time	Strongly disagree	9	9.1	9.1	3.26	1.12
		Disagree	12	12.1	21.2		
		Somewhat	35	35.4	56.6		
		Agree	30	30.3	86.9		
		Strongly agree	13	13.1	100.0		
		Total	99	100.0			

Source: Survey Result, 2019

The study sought to find out whether the procurement staff had the necessary skills and experience to carry out procurements effectively as these have great impact on the effectiveness of the procurement system. The above table 4.4 shows the percentage and distribution of the respondents' reply for employee's competency factors of centralized procurement system effectiveness. From the findings, 51.5% of the respondents agree and strongly agree procurement staffs have recognized professional qualification or competence and 26.3% have somewhat while only 22.2% disagree and strongly disagree on the issue with a mean of 3.45 and a standard deviation of 1.13. The result indicated that more than half of the procurement staff had the necessary qualification and competence to carry out procurements effectively. Together with this there were assessments whether procurement staffs have the skill to procure complex and special items. The results indicated that 14.1% of the respondents strongly agree, 33.3% of the respondents agree, 28.3% somewhat, 19.2% of the respondents disagree and 5.1% of the respondents strongly disagree with a mean 3.32 and a standard deviation of 1.1. This shows that there is limitation in the skill of procurement staffs in the centralized procurement system to procure complex and special items.

The study also tried see whether procurement staffs have the ability to understand users need, supply markets and suppliers and the result in the above table 4.4 indicated that 13.1% of the respondents strongly agree and 30.3% of the respondents agree that procurement staffs have the ability to understand users need, supply markets and suppliers while 35.4% somewhat, 12.1% disagree and 9.1% strongly disagree with a mean of 3.45 and a standard deviation of 1.01. Together with this respondents were asked to rate whether procurement staffs have the ability to negotiate with users and suppliers. The result of this indicated that 13.1% of the respondents strongly agree and 33.3% of the respondents agree that procurement staffs have the ability to negotiate with users and suppliers while 30.3% of the respondent rate somewhat, 17.2% of the respondents disagree and 6.1% of the respondents strongly disagree. This shows that 46.4% of the procurement staffs have the ability to understand users need, supply markets and suppliers.

Furthermore the study sought to find whether procurement staffs have ability to apply public procurement principles and prepare tender and contract documents on time. The results from the survey revealed that 13.1% of the respondents strongly agree, 30.3% of the respondents agree, 35.4% of the respondents rate somewhat, 12.1% of the respondents disagree and 9.1% of the respondents strongly disagree with a mean of 3.26 and a standard deviation of 1.12. This

indicates that only 43.3% of the respondents agreed that procurement staffs have ability to apply public procurement principles and prepare tender and contract documents on time. This result indicated that there are limitations in applying procurement principles and in the preparation of tender and contract documents on time. These limitations would have their own effect on the effectiveness of centralized procurement system.

### 4.3.3 ICT adoption effect on Centralized Procurement Effectiveness

ICT adoption is the process of capturing, transmitting and displays data and information technology and develop and communicating by using ICT instead of manual system for the procurement department (Muthuri, 2014).

**Table4.5 ICT Adoption**

No .	Statement	Scale	Frequen cy	Percent	Cumulativ e Percent	Mean	SD
1	The organization use ICT to facilitate procurement process	Strongly disagree	6	6.1	6.1	3.07	1.19
		Disagree	32	32.3	38.4		
		Somewhat	26	26.3	64.6		
		Agree	19	19.2	83.8		
		Strongly agree	16	16.2	100.0		
		Total	99	100.0			
2	The procurement staffs have enough skill to use ICT for the procurement process	Strongly disagree	2	2.0	2.0	3.09	0.99
		Disagree	29	29.3	31.3		
		Somewhat	35	35.4	66.7		
		Agree	24	24.2	90.9		
		Strongly agree	9	9.1	100.0		
		Total	99	100.0			
3	ICT has increased the output of procurement officers	Strongly disagree	1	1.0	1.0	3.31	1.12
		Disagree	27	27.3	28.3		
		Somewhat	32	32.3	60.6		
		Agree	18	18.2	78.8		
		Strongly agree	21	21.2	100.0		
		Total	99	100.0			
4	There is easily assessable ICT infrastructure that disclose the procurement information	Strongly disagree				3.18	0.93
		Disagree	27	27.3	27.3		
		Somewhat	35	35.4	62.6		
		Agree	29	29.3	91.9		
		Strongly agree	8	8.1	100.0		
		Total	99	100.0			

Source: Survey Result, 2019

As one can see in the table 4.5 above a survey conducted to evaluate the effect of ICT on the effectiveness of centralized procurement. Respondents were asked to show their level of agreement whether the organization use ICT to facilitate procurement process. The result of the survey indicates that 16.2% of the respondents strongly agree, 19.2% of the respondents agree, 26.3% of the respondents rate somewhat, 32.3% of the respondents disagree and 6.1 % of the respondents strongly disagree. This shows that there is a limitation in the organizations use of ICT to facilitate procurement process and this would have its own effect on the effectiveness of procurement system.

The respondents were also asked to rate whether the procurement staffs have enough skill to use ICT for the procurement process or not. The results for this assessment indicates that 9.1% of the respondents strongly agreed, 24.2% of the respondents agree, 35.4% of the respondent rate somewhat level, 29.3% of the respondents disagree and 2% of the respondents strongly disagree. The result shows that there are a considerable number of staffs that have not enough skill to use ICT for the procurement process. This will have its own impact on the effectiveness of the centralized procurement system.

The data obtained from the above table 4.5 about the question ICT has increased the output of procurement officers indicate 21.2% of the respondents strongly agreed, 18.2% of the respondents agree, 32.3% of the respondent rate somewhat level, 27.3% of the respondents disagree and 1% of the respondents strongly disagree. This result indicates that Information Communication Technology has not increased the output of procurement officers.

With regard to the question raise to respondents for their level of agreement on the availability of easily assessable ICT infrastructure that discloses the procurement information 8.1% of the respondents strongly agreed, 29.3% of the respondents agree, 35.4% of the respondent rate somewhat level, 27.3% of the respondents disagree and none of the respondents strongly disagree. This shows that less than half of the respondents agreed that there is easily assessable information communication technology that supports the centralized procurement system. From the analysis the above table we can see that majority of respondents agreed that the system lacks information communication technology infrastructures. The system operates the service manually.

In general, from the analysis the organizations did not used ICT to facilitate the procurement process and the procurement staffs also have not the necessary skill to use the information

communication technology. In addition there is no easily assessable ICT infrastructure to support the procurement system. As a result Information Communication Technology has not played its significant role to increase effectiveness of centralized procurement.

The above findings concur with Abebe (2017) study entitled that “Factors Affecting Public Procurement Performance in Ethiopia: The Case of Public Procurement and Property Disposal Services” shown that information communication technology is one of the factors affecting public procurement performance in the PPPDS.

#### **4.3.4 Operational Procedures effect on Centralized Procurement Effectiveness**

Procurement begins with identifying a need and decided on its procurement requirement and continues through the processes of risk assessment, seeking and evaluating alternative solutions, contract award, delivery of and payment for the property and/or services and, where relevant, the ongoing management of a contract and consideration of options related to the contract (Waters, 2004).

**Table4.6 Operational Procedures**

No .	Statement	Scale	Frequen cy	Perce nt	Cumulativ e Percent	Mean	SD
1	There is proper contract management in the organization	Strongly disagree	3	3.0	3.0	3.28	1.11
		Disagree	26	26.3	29.3		
		Somewhat	25	25.3	54.5		
		Agree	30	30.3	84.8		
		Strongly agree	15	15.2	100.0		
		Total	99	100.0			
2	There is appropriate file record management	Disagree	31	31.3	31.3	3.26	1.06
		Somewhat	25	25.3	56.6		
		Agree	29	29.3	85.9		
		Strongly agree	14	14.1	100.0		
		Total	99	100.0			
3	The organization avoids unnecessary bureaucratic procedures	Strongly disagree	1	1.0	1.0	3.09	1.01
		Disagree	33	33.3	34.3		
		Somewhat	31	31.3	65.7		
		Agree	24	24.2	89.9		
		Strongly agree	10	10.1	100.0		
		Total	99	100.0			
4	Procurement staffs are familiar with the rules and procedures of centralized procurement	Strongly disagree				3.42	0.93
		Disagree	20	20.2	20.2		
		Somewhat	27	27.3	47.5		
		Agree	42	42.4	89.9		
		Strongly agree	10	10.1	100.0		
		Total	99	100.0			
5	Procured items are tested and inspected accordingly at the time of delivery	Strongly disagree				3.26	1.02
		Disagree	27	27.3	27.3		
		Somewhat	33	33.3	60.6		
		Agree	25	25.3	85.9		
		Strongly agree	14	14.1	100.0		
		Total	99	100.0			

Source: Survey Result, 2019

45.5% of the respondents (15.2% strongly agreed and 30.3% agree) indicated that there is proper contract management in the organization while 29.3% (26.3% disagree and 3% strongly disagree) of the respondent did not accept. 25.3% of the respondent rate somewhat level. This indicates that there is limitation in proper contract management in the centralized procurement.

With regard to the question raise to respondents for their level of agreement on issues of availability of appropriate file record management 14.1% of the respondents strongly agreed, 29.3% of the respondents agree, 25.3% of the respondent rate somewhat level, 31.3% of the respondents disagree and none of the respondents strongly disagree. This result shows that only 46.4% of the respondents believe that there is appropriate file record management in the PPPDS in central procurement system.

As indicated in the above table 4.6 respondents were asked whether the organization avoids unnecessary bureaucratic procedures or not. The result showed that 10.1% of the respondents strongly agreed, 24.2% of the respondents agree, 31.3% of the respondent rate somewhat level, 33.3% of the respondents disagree and 1% of the respondents strongly disagree. The results indicate that there is limitation in the organization in avoiding unnecessary bureaucratic procedures.

As indicated in the above table procurement staffs are familiar with the rules and procedures of centralized procurement (10.1% of the respondents strongly agreed, 42.4% of the respondents agree) while 27.3% of the respondent rate somewhat level. Those only 20.2% of the respondents disagree and none of the respondents strongly disagree regarding having the knowledge of procurement rules and procedures. This indicates that the rules and procedures used for the central procurement system are known by more than half of the procurement staffs.

The respondents indicated that procured items are tested and inspected accordingly at the time of delivery with a response of 14.1% of the respondents strongly agreed, 25.3% of the respondents agree, 33.3% of the respondent rate somewhat level, 27.3% of the respondents disagree and none of them respond strongly disagree. This shows that there is limitation in inspection and test when the procured items are delivered for the beneficiaries.

#### **4.4 Effectiveness of Centralized Procurement System**

The study sought to investigate the extent to which central procurement practices are effective and improved the effectiveness of federal budgetary government organizational operations.

**Table4.7 Effectiveness of centralized procurement system**

No.	Statement	Scale	Frequency	Percent	Cumulative Percent	Mean	SD
1	Effectiveness in terms of on time delivery of goods and services	Strongly disagree	17	17.2	17.2	2.74	1.21
		Disagree	30	30.3	47.5		
		Somewhat	21	21.2	68.7		
		Agree	24	24.2	92.9		
		Strongly agree	7	7.1	100.0		
		Total	99	100.0			
2	Effectiveness in terms of delivering the required quality of goods and services	Strongly disagree	18	18.2	18.2	2.7	1.17
		Disagree	27	27.3	45.5		
		Somewhat	27	27.3	72.7		
		Agree	21	21.2	93.9		
		Strongly agree	6	6.1	100.0		
		Total	99	100.0			
3	Effectiveness on delivering the required quantity of goods and services	Strongly disagree	13	13.1	13.1	2.84	1.19
		Disagree	29	29.3	42.4		
		Somewhat	29	29.3	71.7		
		Agree	17	17.2	88.9		
		Strongly agree	11	11.1	100.0		
		Total	99	100.0			
4	Effectiveness in terms of obtaining goods and services from the right source	Strongly disagree	4	4.0	4.0	2.96	1.08
		Disagree	37	37.4	41.4		
		Somewhat	27	27.3	68.7		
		Agree	21	21.2	89.9		
		Strongly agree	10	10.1	100.0		
		Total	99	100.0			
5	Effectiveness in terms of obtaining goods and services with the right price	Strongly disagree	1	1.0	1.0	3.35	0.96
		Disagree	18	18.2	19.2		
		Somewhat	38	38.4	57.6		
		Agree	29	29.3	86.9		
		Strongly agree	13	13.1	100.0		
		Total	99	100.0			
6	Effectiveness in terms of maximizing customer satisfaction	Strongly disagree	11	11.1	11.1	2.59	1.01
		Disagree	43	43.4	54.5		
		Somewhat	24	24.2	78.8		
		Agree	18	18.2	97.0		
		Strongly agree	3	3.0	100.0		
		Total	99	100.0			

Source: Survey Result, 2019

As indicated in the above descriptive statistics table 4.7, effectiveness of centralized procurement system in terms of on time delivery of goods and services 7.1% of the respondents strongly agreed, 24.2% of the respondents agree, 21.2% of the respondent rate somewhat level, 30.3% of the respondents disagree and 17.2% of the respondents strongly disagree with a mean value of 2.74 and a standard deviation of 1.21. The mean value 2.74 which is less than 3 indicates that there is limitation in the centralized procurement system in providing the required goods and services in the required time for governmental organizations and this have effects on the effective operations of federal government organizations.

Respondents were also requested to rate the level of effectiveness of centralized procurement system in terms of delivering the required quality of goods and services. The result shows that 6.1% of the respondents strongly agreed, 21.2% of the respondents agree, 27.3% of the respondent rate somewhat level, 27.3% of the respondents disagree and 18.2% of the respondents strongly disagree with a mean of 2.7 and a standard deviation of 1.17. This indicates that there is a weakness of the centralized public procurement system in delivering the required quality of goods and services for the federal budgeted government organizations.

The results sought in the above table 4.7 to analyze whether the centralized procurement system provide the required quantity of goods and services for organizations indicate 11.1% of the respondents strongly agreed, 17.2% of them agree, 29.3% of the respondent rate somewhat level, 29.3% of the respondents disagree and 13.1% of the respondents strongly disagree with a mean value of 2.84 which is below medium level. This shows that there is a problem of effectiveness on delivering the required quantity of goods and services for federal budgetary organizations with centralized procurement system.

There is also limitation in terms of obtaining goods and services from the right source in centralized public procurement system of the federal budgetary organization. This result is obtained from the respondents as 10.1% of the respondents strongly agreed, 21.2% of the respondents agree, 27.3% of the respondent rate somewhat level, 37.4% of the respondents disagree and 4% of the respondents strongly disagree with a mean value of 2.96 and a standard deviation of 1.08.

On the other hand centralized public procurement is effective in terms of obtaining goods and services with the right price. This result is indicated in the above table 4.7 as 13.1% of the respondents strongly agreed, 29.3% of the respondents agree, 38.4% of the respondent rate

somewhat level, 18.2% of the respondents disagree and 1% of the respondents strongly disagree with a mean value of 3.35 which is above the medium level with a standard deviation of 0.96.

With regard to effectiveness of centralized procurement in terms of maximizing customer satisfaction 3% of the respondents strongly agreed, 18.2% of the respondents agree, 24.2% of the respondent rate medium level, 43.4% of the respondents disagrees and 11.1% of the respondents strongly disagree with a mean of 2.59 and a standard deviation of 1.01. This result indicates that more than half of the respondents are dissatisfied with the centralized public procurement system.

As indicated in the above descriptive statistics table, central public procurement system operated by PPPDS has limitation in terms of delivering of goods and services on the right time, providing the right quality and quantity goods and services from the right source. The relative advantage obtained from this procurement system is obtaining goods and services with a right price. But the overall result indicates that there is dissatisfaction in the system by the organizations. Therefore, from the result above, one can conclude that centralized procurement system operated by PPPDs is not effective to improve effectiveness of organizational operations of the federal budgetary government organizations.

## **4.5 Tests and Statistical Analysis**

The inferential statistics used in this study was concerned with the various tests of significance for normality, autocorrelation and multicollinearity in order to determine the validity of data. The data was sorted to group questions according to applicable constructs under test. Finally correlation and standard multiple regression analysis were performed. Tests and analysis of the data are presented below:

### **4.5.1 Normality Test**

It is conventional to assume that the observations are normal or distributed symmetrically around the center of all scores. The data would be distributed symmetrically around the center of all scores. As such, if we drew a vertical line through the center of the distribution then it should look the same on both sides. This is known as a normal distribution and is characterized by the bell-shaped curve. This shape basically implies that the majority of scores lie around the center

of the distribution so the largest bars on the histogram are all around the central value (Field, 2006).

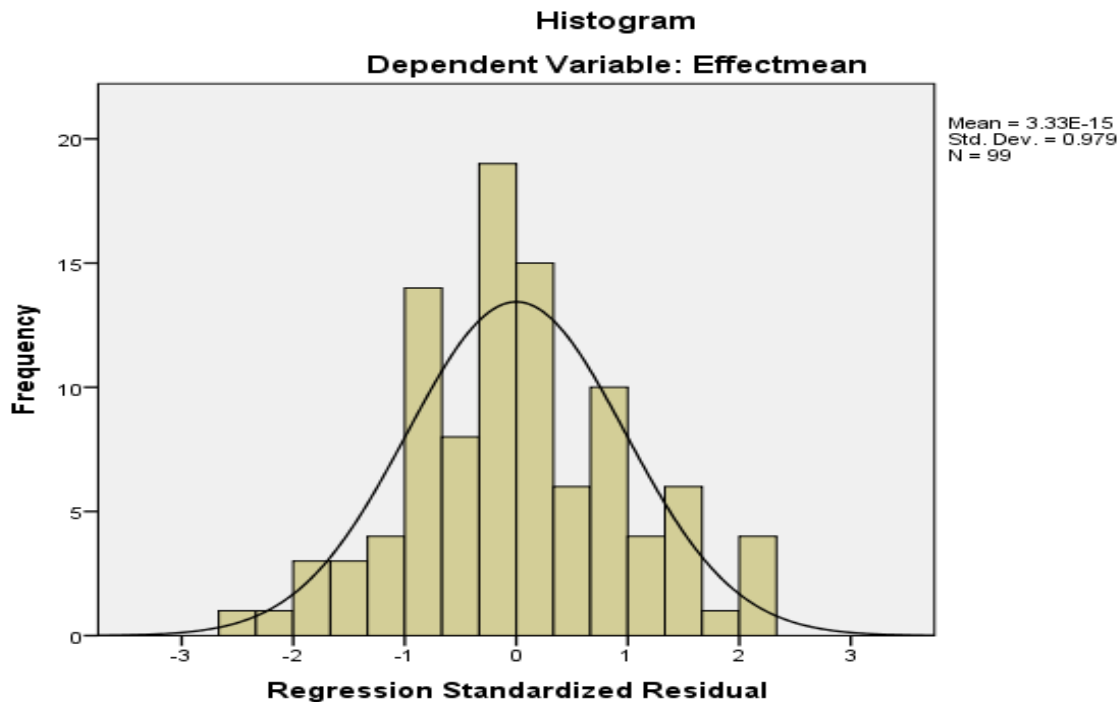
In a normal distribution, the values of Skewness are 0. If a distribution has values of skew above or below 0 then this indicates a deviation from normal (Field, 2009). As we have seen from the below table, the Skewness approaches or around to Zero and normal distribution figure 4.1 also show the data is almost normal. All variables were found to be normal.

**Table4.8 Tests of Normality Framework Agreement Effectiveness**

	<b>Procurement plan implementation</b>	<b>Employee’s competence</b>	<b>ICT adoption</b>	<b>Operational management</b>
<b>Skewness</b>	-0.143	-0.206	0.302	0.325
<b>Std. Error of Skewness</b>	.243	.243	.243	.243

Skewed distributions are not symmetrical and instead the most frequent scores (the tall bars on the graph) are clustered at one end of the scale. A skewed distribution can be either positively skewed (the frequent scores are clustered at the lower end and the tail points towards the higher or more positive scores) or negatively skewed (the frequent scores are clustered at the higher end of and the tail points towards the lower more negative scores) (Field, 2005).

**Figure4. 1 Normal distribution of the data**



## 4.5.2 Correlation Relation

Correlation analysis was used to establish the strength of association between variables. The correlation of the variable was measured by Spearman's correlation coefficient. According to Field, 2006, the Spearman's correlation coefficient shows the relationship between the predictor and outcome variable. The relationship measured in the range of 0.1 to 0.29 indicates weak relationship, 0.30 to 0.49 is moderate, above 0.50 shows strong relationship; while the positive and negative sign is for the direction of their relationship.

**Table 4.9 Correlation Matrix table**

		Correlations					
			Procurement plan implementation	Employee's competence	ICT adoption	Operational management	Effectiveness of centralized procurement
S p e e r m a ' s r h o	Procurement plan implementation	Correlation Coefficient	1.000	.558**	.318**	.631**	.687**
		Sig. (2-tailed)	.	.000	.001	.000	.000
		N	99	99	99	99	99
	Employee's competence	Correlation Coefficient	.558**	1.000	.354**	.601**	.656**
		Sig. (2-tailed)	.000	.	.000	.000	.000
		N	99	99	99	99	99
	ICT adoption	Correlation Coefficient	.318**	.354**	1.000	.415**	.487**
		Sig. (2-tailed)	.001	.000	.	.000	.000
		N	99	99	99	99	99
	Operational management	Correlation Coefficient	.631**	.601**	.415**	1.000	.809**
		Sig. (2-tailed)	.000	.000	.000	.	.000
		N	99	99	99	99	99
	Effectiveness of centralized procurement	Correlation Coefficient	.687**	.656**	.487**	.809**	1.000
		Sig. (2-tailed)	.000	.000	.000	.000	.
		N	99	99	99	99	99

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

Source: Survey Result, 2019

Correlation analysis was conducted to determine whether a statistically significant relationship exists between the dependent (Effectiveness of centralized public procurement) and independent variables (Procurement plan implementation, Employee's competence, ICT adoption and Operational management).

Procurement plan implementation is positively correlated and statistically significant with effectiveness of centralized procurement system with Spearman's correlation coefficient of  $r_s = .687$ ,  $P < 0.01$ , which indicates strong relationship between the two variables. The correlation matrix result also indicate there is a positive correlation and significant relation between employee's competency and effectiveness of centralized procurement system shown by a correlation figure of  $r_s = .656$ ,  $P < 0.01$ . The result further shows that there was positive correlation between ICT adoption and effectiveness of centralized procurement with Spearman's correlation coefficient of  $r_s = .487$ ,  $P < 0.01$  and at the same time operational management has positively correlated and statistically significant relation with effectiveness of centralized procurement with Spearman's correlation coefficient of  $r_s = .809$ ,  $P < 0.01$  that indicated a strong relationship between the two variables. The above result all indicates that there was a positive and strong correlation between effectiveness of centralized procurement system and procurement plan implementation, employee's competence, ICT adoption and operational procedures/management.

#### **4.5.3 Multicollinearity Assumptions**

Multicollinearity refers to the situation in which the independent variables are highly correlated in a way that has undesirable implication on the outcome of regression analysis. Multicollinearity exists when there is a strong correlation between two or more predictors in a regression model (Saunders *et al*, 2007). There should be no perfect linear relationship between two or more the predictors. So the predictor variables should not correlation too highly (Ho, 2006). According to Robert (2006), if collinearity is discovered then one can either remove one of the variables or create a new variable that combine the previous two that were highly inter correlated because when the predictor variables are highly correlated, they share essentially the same information and together, they may explain a great deal of the dependent variable, but may not individually contribute significantly to the model. Thus, the impact of multicollinearity is to reduce any individual independent variable's predictive power by the extent to which it is

associated with the other independent variables (Beyan, 2014). This research data multicollinearity assumption is checked by the Spearman's correlation Coefficient and Collinearity Statistics:

The first assumption is checking the value of Spearman's correlation coefficient among predictor's variables. If Spearman's correlation coefficient value among predictors are below <0.9, there is no substantial correlation between predictor variables so there is no multicollinearity problem (Field, 2006). As shown above table 4.9 all the Spearman's correlation coefficient values between predictors are below 0.90. Therefore, it is satisfied multicollinearity assumption and don't have collinearity problem so that it is able to obtain unique estimates of the regression coefficient.

Accordingly, Tolerance and Variance Inflation Factor (VIF) values were calculated to check multicollinearity and the result is presented on table 4.10 below. The Tolerance value is an indication of the percentage of variance in the predictor that cannot be accounted for by the other predictors implying the fact that very small values indicate overlap or sharing of predictive power (Robert, 2006). The Tolerance column value below 0.2 and VIF value above 10 pose a multicollinearity problem (Williams, 2015).

**Table 4.10 Multicollinearity Test**

<b>Coefficients<sup>a</sup></b>			
<b>Model</b>		<b>Collinearity Statistics</b>	
		<b>Tolerance</b>	<b>VIF</b>
1	Procurement plan implementation	.575	1.741
	Employee's competence	.567	1.763
	ICT adoption	.766	1.306
	Operational management	.440	2.271

a. Dependent Variable: Effectiveness of centralized procurement

Source: Survey Result, 2019

As shown on the table, the Tolerance value for all the independent variables are greater than 0.2 and the highest VIF is 2.271. Therefore, the model performed with no major multicollinearity problem among the explanatory variables. As implied by the Tolerance and VIF values, in this particular case, multicollinearity is not a serious problem.

#### 4.5.4 Multiple Regression Results

Multiple linear regression analysis was conducted to determine how the dimensions of the independent variable predict the dependent variable. Multiple linear regression analysis is a method of estimating or predicting a value on some dependent variable given the values of one or more independent variables. Through the analysis of multiple linear regressions, an attempt has been made to determine the magnitude of the predicting power of the dimensions of the independent variable (procurement plan implementation, employee’s competence, ICT adoption and operation management) on the dependent variable (i.e. effectiveness of centralized procurement).

##### I. Coefficient of Determination

Model summary table describes the overall model whether the model is successful in predicting dependent variables. It gives a value of R square, which measure of how much of the variability in the outcome is accounted for the predictors. In addition, this summary table tells us whether auto-correlation assumption is satisfied or not through Durbin Watson value (Field, 2006).

**Table4.11 Model Summary**

Model Summary <sup>b</sup>					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.874 <sup>a</sup>	.763	.753	.45079	1.767
a. Predictors: (Constant), procurement plan implementation, Employee’s competence, ICT adoption, operation management					
b. Dependent Variable: Effectiveness of centralized procurement					

Source: Survey Result, 2019

In the above table 4.11, multiple correlation coefficient R of .874 indicates that the correlation among the independent variables cumulatively on the dependent variable is strong and positively correlated; as a result working on those selected factors have positive impact on effectiveness of centralized procurement of the federal government organizations operated by PPPDS. The coefficient of determination, R square is interpreted as 76.3 % of the variation in the dependent variable procurement performance is explained by the independent variables (Procurement plan implementation, Staff Competence, adoption of ICT and operational management) and the remaining percent is explained by other dimensions. This means that other factors not studied in

this study contribute 23.7% affecting centralized procurement effectiveness in the federal budgetary governmental organizations operated by PPPDS.

Durbin- Watson test check the auto correlation of the data and if the value of Durbin-Watson test 1.5 to 2.5 shows that there is no auto-correlation in the data (Ayyanger, 2007). As a result in this study the Durbin- Watson test result is 1.767 as a result there is no auto-correlation between the data.

## II. Analysis of Variance /ANOVA/ Test

The study used ANOVA to establish the significance of the regression model. In testing the significance level, the statistical significance was considered significant if the p-value was less or equal to 0.05. The significance of the regression model is as shown in table 4.12 below with P-value of 0.00 which is less than 0.05. The results indicated that the overall model was statistically significant. The results further imply that the independent variables are good predictor of the dependent variable which was supported by an F-value of 75.810 is significant at p-value of 0.000.

**Table4.12 Analysis of Variance (ANOVA)**

ANOVA						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	61.622	4	15.406	75.810	.000 <sup>b</sup>
	Residual	19.102	94	.203		
	Total	80.724	98			
a. Dependent Variable: Effectiveness of centralized procurement						
b. Predictors: (Constant), Operational management, ICT adoption, Procurement plan implementation, Employee's competence						

Source: Survey Result, 2019

Therefore, from the result, it can be concluded that with 76.3% of the variance (R square) in effectiveness of centralized procurement is significant and the model appropriately measure the dependent variables. Furthermore, the significant value P is very low or less than 0.01 means that the coefficient value is unlikely to have occurred by chance alone.

### III. Regression Coefficients or Model

Standardized regression coefficient (Beta) is the estimated coefficient indicating the strength of relationship between an independent variable and dependent variable expressed on a standardized scale where higher absolute values indicate stronger relationships (range is from -1 to 1) (William & Barry, 2010).

**Table 4.13 Regression Coefficients**

Model		Coefficients				
		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-1.091	.238		-4.590	.000
	Procurement plan implementation	.231	.066	.231	3.494	.001
	Employee's competence	.185	.071	.175	2.620	.010
	ICT adoption	.135	.062	.124	2.157	.034
	Operational management	.642	.095	.514	6.793	.000

a. Dependent Variable: Effectiveness of centralized procurement

From the coefficient findings provided in the above table 4.13, procurement plan implementation and centralized procurement system effectiveness are positive and statistically significantly related at 0.231 (t = 3.494) and a p – value of 0.001. This implies that procurement plan implementation significantly influences effectiveness of centralized procurement system in the federal governmental organizations and thus have has a significant positive relationship with effective implementation of procurement system. In addition employee’s competence and centralized procurement system effectiveness are positive and statistically significantly related at 0.175 (t = 2.620) and a p significance level of 0.01 which implies employee’s competence significantly influences effectiveness of centralized procurement in the federal budgetary government organizations. ICT adoption and centralized procurement system effectiveness are also positive and statistically significantly related at 0.124 (t = 2.157) and a p significance level of 0.034 which implies ICT adoption significantly influences effectiveness of centralized procurement system. As indicated in the above table it is clear that operational management has a major significant influence on the effectiveness of centralized public procurement system in the federal budgetary governmental organizations as it gave a coefficient value of 0.514, (t = 6.793) and a p – value of 0.000 which is less than 0.05.

In general the above result indicates that operational management contribute more to effectiveness of centralized procurement system at PPPDS followed by procurement plan implementation, employees competence, while ICT adoption contributes the least relatively from the others to centralized procurement system effectiveness at PPPDS.

Thus the predictive model provide by the research findings is as expressed below:

$$Y = -1.091 + 0.514X_1 + 0.231X_2 + 0.175X_3 + 0.124X_4$$

Where:

Y - Effectiveness of centralized procurement

$\beta_0$  - Constant (-1.091)

X<sub>1</sub> – Operational management

X<sub>2</sub> – Procurement plan implementation

X<sub>3</sub> – Employee's competence

X<sub>4</sub> – ICT adoption

By examining the standardized regression coefficient ( $\beta$ ) for each of the predictor variables, the result found that operational management ( $\beta = .514$ ,  $p < 0.05$ ), procurement plan implementation ( $\beta = .231$ ,  $p < 0.05$ ), employee's competence ( $\beta = .175$ ,  $p < 0.05$ ) and ICT adoption ( $\beta = .124$ ,  $p < 0.05$ ) show significant positive relationship with effectiveness of centralized procurement system. So, there is a positive relationship between the predictors (Operational management, Procurement plan implementation, Employee's competence and ICT adoption) and outcome (centralized public procurement system) since the value of beta coefficient is positive.

The study therefore concluded that through improvement in operational management, procurement plan implementation, employee's competence and ICT adoption, the PPPDS can improve the effectiveness of the centralized procurement system so that effectiveness of organizational operations will be improved. On the other hand failure to properly implement the above practices is likely to weaken the effectiveness of centralized procurement system.

## Chapter Five

### Summary, Conclusions and Recommendations

#### 5.1 Summary of Findings

The study was conducted to assess factors that affect effectiveness of the centralized public procurement system operated by federal Public Procurement and Property Disposal Services for the federal budgetary government organizations. The effect of procurement plan implementation, employee's competence, ICT adoption and operational management on the effectiveness of the centralized procurement system in the federal budgetary governmental organizations were examined from questionnaire responses of the respondents developed by the researcher. The status of effectiveness of the centralized procurement has also been assessed. The following findings are obtained from the analysis.

##### 5.1.1 Procurement Plan Implementation

The first objective was to examine the extent to which procurement plan implementation affects the effectiveness of centralized procurement system. More than 80% of the respondents argue that procurement plan can facilitate procurement activity according to user need.

From Spearman's correlation coefficient, it was found that procurement plan implementation is positively and strongly correlated with the effectiveness of centralized procurement system with Spearman's correlation coefficient of  $r_s = .687$ ,  $P < 0.01$ .

From regression model, the result also indicates that procurement plan implementation and centralized procurement system effectiveness are positive and statistically significantly related at 0.231 ( $t = 3.494$ ) and a p significance level of 0.001. Increase in the level of procurement plan implementation significantly increases effectiveness of centralized procurement by 0.231. This implies that procurement plan implementation accounts for 23.1% of the variations in centralized procurement effectiveness.

### 5.1.2 Employee's Competence

The second objective was to examine the extent to which competency of staffs influence the effectiveness of centralized procurement in PPPDS. The result shows that there were limitations of procurement staffs in having the skill to procure complex and special items; the ability to understand users need, supply markets and suppliers; the ability to negotiate with users and suppliers; and ability to apply public procurement principles and prepare tender and contract documents on time.

The correlation matrix result from Spearman's correlation coefficient indicate there was a positive correlation and significant relation between employee's competency and effectiveness of centralized procurement system shown by a correlation figure of  $r_s = .656$ ,  $P < 0.01$ .

From regression model, a result computed indicates that employee's competence and centralized procurement system effectiveness are positive and statistically significantly related at 0.175 ( $t = 2.620$ ) and a p significance level of 0.01 which implies increase in the level of employee's competence increases effectiveness of centralized procurement. This implies that staff competency accounts for 17.5% of variations in centralized procurement system effectiveness.

### 5.1.3 ICT Adoption

The third objective was to assess the effect of ICT adoption on the effectiveness of the centralized public procurement practice in PPPDS. The results indicated that there is no easily assessable ICT infrastructure to support the system and procurement staffs have not enough skill to use ICT for the procurement process.

Regarding the relationship between the adoptions of ICT and effectiveness of centralized procurement system the result of Spearman's correlation coefficient shows that there was positive correlation between ICT adoption and effectiveness of centralized procurement with Spearman's correlation coefficient of  $r_s = .487$ ,  $P < 0.01$ . This shows that ICT adoption impacted positively centralized procurement system effectiveness.

From the regression model, ICT adoption and centralized procurement system effectiveness are also positive and statistically significantly related at 0.135 and a p significance level of 0.034 implies increase in the level of ICT adoption increases effectiveness of centralized procurement.

#### 5.1.4 Operation Management

The other objective of this study was assessing the effect of operational procedures on the effectiveness of the centralized public procurement practice in the PPPDS and the result indicate that there were problems of proper contract management and file record management. There were unnecessary bureaucratic procedures and procured items were not tested and inspected accordingly at the time of delivery.

From Spearman's correlation coefficient, it was clear that there is a positive correlation between operational management and effectiveness of centralized procurement with Spearman's correlation coefficient of  $r_s = .809$ ,  $P < 0.01$  that indicated a strong relationship between the two variables.

From regression model, the coefficient findings indicate that operational management has a major effect on the effectiveness as it gave a coefficient value of 0.514, ( $t = 6.793$ ) and a  $p$  – value of 0.000. This implies that increase in operational management results in increase in effectiveness of centralized procurement in federal government budgetary organizations. This implies that procurement operation management accounts for 51.4% of variations in central procurement system effectiveness.

In general operation management has strongest impact on effectiveness with  $\beta = 0.514$  followed by procurement plan implementation with  $\beta = 0.231$  and the third is employee's competence with  $\beta = 0.175$  and the least impact relatively from the other factors are ICT adoption with  $\beta = 0.124$ . As the multiple correlation coefficients  $R$  of .874 indicates that the correlation among the independent variables cumulatively on the dependent variable is strong and positively correlated; as a result working on those selected factors have positive impact on effectiveness of centralized procurement system operated by PPPDS. The coefficient of determination,  $R$  square also indicates 76.3 % of the variation in the dependent variable is explained by the independent variables and the remaining percent is explained by other dimensions.

Finally, the result of the study indicates that centralized procurement system was not effective (aggregate mean-2.9) in terms of delivery of goods and services in the right time, at the right quality and quantity from the right source. Relatively the procurement system has provided goods and services with a right price. As a result the federal budgetary governmental organizations were not satisfied by the centralized procurement system practices operated by PPPDS.

## 5.2 Conclusions

Based on the findings presented in previous sections, the study drawn the following conclusions.

- The study result indicates that procurement plan implementation and effectiveness of centralized procurement system has positive and strong relationship. Planning influences positively and significantly the procurement system. There were problems of planning the procurement need with full specification and submit on time for the procuring unit and a considerable number of staffs did not take training about procurement need planning.
- Employee's competence also has strong and positive relation and influence positively and significantly the effectiveness of centralized procurement system. There was limitation in the skill of procurement staffs to procure complex and special items and in applying procurement principles and in the preparation of tender and contract documents on time.
- Furthermore it can be conclude ICT adoption has positive correlation and influences positively and significantly the effectiveness of centralized procurement system operated by the PPPDS. The study identified that the system lacked easily assessable ICT infrastructure and the procurement staffs have limitation of skill to use ICT which might affect the role of ICT to increase effectiveness of centralized procurement.
- The result of the study implied that operational management has also positive and strong correlation and influence to a large extent among the independent variables the effectiveness of centralized procurement system. The study concludes that there was limitation in proper contract management, appropriate file record management, problem of avoiding unnecessary bureaucratic procedures and limitation in inspection and test when the procured items are delivered for the beneficiaries.
- From the assessment result the centralized procurement system was not effective in delivering goods and services on time, with right quality and right quantity from the right source for federal budgetary government organization. The federal budgetary government organizations were dissatisfied by the poor performance and inefficient services provided by the PPPDs in operating the centralized procurement system.

### 5.3 Recommendations

According to the findings, hereafter, the researcher forwarded the following recommendations as improvement interventions for future improvements:

- PPPDS must provide continuous training how to prepare the procurement need plan to procurement staffs continuously to improve the quality of the plan.
- Continuous capacity building through training and experience sharing for procurement staffs should be given to equip them with the necessary skills required to handle dynamic changes of procurement systems and improve ability to apply public procurement principles and prepare tender and contract documents on time.
- The PPPDS must establish well organized and integrated, easily assessable ICT infrastructure systems that support the system and disclose the relevant current procurement information to the stakeholders. In addition training to improve the skill of utilization of ICT must be provided for procurement staffs for the purpose of enhancing effectiveness of procurement.
- PPPDS must design and implement proper contract management system to increase the performance levels of procurement process. In addition the contract management should be administered by qualified and experienced procurement professionals.
- Procurement unit should develop appropriate file record system supported by ICT which is easily accessible and operable to any users.
- Sample quality checkup must be made by relevant professional before receiving materials from supplies to have right quality goods.
- PPPDS should make regular assessment on the effectiveness of centralized procurement system to identify and solve basic problems that affect the effectiveness of the system.

### 5.4. Suggestion for further Study

The scope of this research was attempted to assess centralized procurement system on the effectiveness of organizational systems, a case of Federal Public Procurement and Property Disposal Service. The study found that the variables considered; procurement plan implementation, employee's competence, ICT adoption and operation management accounted for 76.3% variability in centralized public procurement system effectiveness; implying that the

23.7% could be due to other factors beyond the scope of this study. Further research is recommended on other factors such as, duration of framework agreement, supplier related factors, ethics of participants, market dynamism and etc.

## References

- Adams, J., Khan, H.T., Raeside, R. and White, D.I., 2007. Research methods for graduate business and social science students. SAGE publications India.
- Akech, J. M., 2005. Development partners and governance of public procurement in Kenya: Enhancing Democracy in the Administration of Aid. *International Law and Politics*, vol.37, no.4.
- Albano, G.L., 2010. Flexible Strategies for Centralized Public Procurement, *Review of Economics and Institutions* Vol. 1 – No. 2.
- Alex T., 2007. Assessment of Contract Management for Goods in Public Procurement Entity in Tanzania: Case study of Dar ES Salaam City Council. Dar es Salaam.
- Arrowsmith,S., 2010. Public procurement: Basic concepts and the coverage of procurement rules, in Public procurement relations: an introduction. EU Asia Inter University Network.
- Ayyangar, Leonor, 2000. Skewness, Multicollinearity, Heteroskedasticity-You Name It, Cost Data Have It! Solutions to Violations of Assumptions of Ordinary Least Squares Regression Models Using SAS®.
- AzeemV., 2007. Impact of the Public Procurement Act, 2003 (Act 663) in Ghana Integrity Initiative's Perspective. Paper Presented at a Special Forum on Improving Efficiency and transparency in Public Procurement through Information Dissemination
- Basheka, B. C. & Bisangabasaija, E., 2010. Determinants of unethical public procurement in local government systems of Uganda: a case study', *Int. J. Procurement Management*, 3(1), 91–104.
- Basheka, B.C., 2008. Procurement Planning and accountability of local Government procurement systems in developing countries: Evidence from Uganda. *Journal of Public Procurement*, Vol. 8 (3) pp 379-406.
- Bucharest,2003. Performance Audit. Performance Auditing Guide. *Romania*. The Court of Accounts.

- Carlisle, H. M., 1974. A contingency approach to decentralization. *Advanced Management Journal*, vol. 39, no.3.
- Corey, E., Raymond, 1978. Should Companies Centralize Procurement? *Harvard Business Review*, vol. 56, no. 6.
- Cousins, P., Lamming, R., Lawson, B. & Squire, B., 2008. Strategic supply management, Principles, theories and practice, Financial Times Prentice Hall, Harlow.
- Dimitri, N., Dini, F. & Piga, G., 2006. When should procurement be centralized? In: Handbook of procurement, edn, Cambridge University Press, New York.
- Donaldson, L., 2001. The contingency theory of organizations, Foundations for organizational science, Thousand Oaks, Calif.: Sage.
- Donaldson, L., 1999. The Normal Science of Structural Contingency Theory in Studying organization / theory & method, edited by C. Hardy and S. R. Clegg. London: Sage.
- EPC, 2007. Initiatives to improve the efficiency and effectiveness of public spending: Modernizing Public Administration. Directorate General for Economic and Financial Affairs, European Commission. Brussels.
- FDRE, 2011. The Ethiopian Federal Government Procurement and Property Administration Directive.
- Gadde, L. and Håkansson, H., 2001. Supply network strategies. Chichester: Wiley.
- Gelderman, C.J., Th. Ghijsen, P.W. & Brugman, M.J., 2006. Public procurement and EU tendering directives-explaining non-compliance', *International Journal of Public Sector Management*, vol.19, no.7.
- Hyttinen, J., 2013. Improvement of Indirect Materials' Purchasing Centralization within Business Process Service Engagement. *Lahti University of Applied Sciences*. p.7
- Iloranta, K., Pajunen-Muhonen, H., 2012. Hankintojen johtaminen, (3rd ed.) Helsinki: Tietosanoma Oy.
- Japheth Ocharo Kiage, 2013. Factors Affecting Procurement Performance: A Case of Ministry of Energy, *International Journal of Business and Commerce*, Vol. 3, No.1

Jone, S.(2007). Public Procurement in Southeast Asia: Challenge and Reform, *Journal of Public Procurement, Volume 7, Issue 1*.

Julius Emaru, 2016.Factors affecting performance of the procurement and disposal unit in the Uganda national agricultural research organization.Unpublished dissertation. Uganda Technology and Management University.

Karjalainen, K., 2011. Estimating the cost effects of purchasing centralization–Empirical evidence from framework agreements in public sector. *Journal of Purchasing & Supply Management*, vol. 17.

Karjalainen, K., 2010. Estimating the cost effects of purchasing centralization-Empirical evidence from framework agreements in the public sector. *Journal of Purchasing and Supply Management*, 2011, vol.17,no.2.

Karjalainen, K., 2009.Challenges of purchasing centralization. Empirical evidence from public procurement, *Helsinki School of Economics*.

Karlsen, F & Tollefsen, L., 2009. <http://www.bi.no/OsloFiles/Byggsenteret/Master Thesis.pdf>

Kiage, J. O.(2013).Factors affecting procurement performance. *International Journal of Business and Commerce*.

Kothari, C., 2004. Research Methodology: Methods and Techniques, (2nd ed).London Pitman Publishers.

Leenders, Michiel R., P.Fraser Johnson, Anna E. Flynn, & Harold E. Fearon, 2006. *Purchasing and supply management: with 50 supply chain cases*, 13th ed. Boston: McGraw-Hill/Irwin.

Leenders, Michiel R., & P. Fraiser Johnson,2000. *Major Structural Changes in Supply Organizations*: Center for Advanced Purchasing Studies.

Li, L., Zhang, Y., Sun, H., 2012.Research on Centralized Procurement mode of Construction project materials. *Applied Mechanics and Materials*, vol. 193–194.

Lysons, K., Farrington, B., 2012. Purchasing and supply chain management, 8th edition. Essex: Pearson Education Limited.

Mamiro, G., 2010.Value for Money, the Limping Pillar in Public Procurement - Experience from Tanzania.

- Md. Taslimul Islam, 2014. Effectiveness of Centralized Procurement Systems in Public Sector Enterprises of Bangladesh: A Focus on Economic Census 2013 Faculty of Business Administration Eastern University. Dhaka.
- Mlinga, R., 2008. Reemphasizing the need for procurement planning. *Tanzania Procurement Journal Volume 1 No.17*.
- Monczka, R.M.b., Handfield, R.B., Giunipero, L.C., Patterson,J.L. & Waters, D., 2010. *Purchasing & supply chain management*, South-Western Cengage Learning, Andover.
- Monczka, R. M., Trent, R. J., Handfield, R. B., 2002. *Purchasing and supply chain management*, (2nd ed.). South Western: Cincinnati, OH.
- Munson, C.L.,Hu, J., 2009.Incorporating quantity discounts and their inventory impacts into the centralized purchasing decision. *European Journal of operational Research*.
- Munson, C. L., 2007.The appeal of partially centralized purchasing policies, *International Journal of Procurement Management*, Vol. 1, Nos. 1/2.
- Muthuri, Caroline G., 2014. Information and communication technology and procurement performance in star rated hotels in Nairobi, Kenya. University of Nairobi.
- Namusonge,et al., 2013. Proceedings of 1st JKUAT-SHRD Research Conference JKUAT-SHRD Research Conference, pp.514–52 available at: [http:// www.globalbizresearch.org/files/ gjcr\\_lucy\\_wamugo\\_mwangi-59576.pdf](http://www.globalbizresearch.org/files/gjcr_lucy_wamugo_mwangi-59576.pdf)
- Naushad Khan , 2018. Public Procurement Fundamentals (1st ed) Emerald Publishing Limited
- Nollet, J.,Beaulieu, M., 2005. Should an organization join a purchasing group? Supply Chain Management. *An International Journal*.
- OECD, 2011. Centralized procurement system in the European Union, retrieved 16 November 2018 from <http://www.oecd-ilibrary.org>
- OECD, 2010. Roundtable on collusion and corruption in public procurement, available online at: <http://www.oecd.org/daf/competition/cartels/46235399.pdf>
- OECD, 2007. Integrity in Public Procurement Good Practice from A to Z. Available from: <http://www.oecd.org/development/effectiveness/38588964>.

OECD, 2000. Centralized and Decentralized Public Procurement, Sigma Papers, No. 29, OECD Publishing.

Patrick, B., 2003. Social Research Theory, Methods and Techniques. Great Britain: SAGE Publications Ltd.

Patrick, K. N., Mamati, F. W., & Jonathan, O. O. , 2010. Evaluation of the Influence of the Public Procurement Regulations on Procurement Practices among Secondary Schools in Mosoch Division, Kisii County. Kenya.

Roman Legesse, 2017. Public procurement practices and challenges in Ethiopia: Evidence from selected public organizations. Master Thesis.

RTT, 2005. Reform of Public Sector Procurement Regime. Trinidad and Tobago: Ministry of Finance.

Samuel, M. K., & Njeru, A., 2014. Factors Affecting Procurement Performance in the Milk Processing Firms in Kiambu County. *International Journal of Science and Research(IJSR)*, vol.3, no.1.

Sarpong A.C., 2007. Procurement Management and its Associated Risks, Lecture Presented at Workshop for Committee of Internal Auditors, KNUST, 12th April, 2007.

Sofoneyas Engida, 2016. The Impact of Organizational Structure on the Implementation of Public Procurements Policy: The Case of Public Procurements Units in Some Selected Public Organizations of the Federal Government. Master Thesis.

Tariku Tamiru, 2017. The influencing factors of framework agreement effectiveness in public procurement and property disposal service, Ethiopia. Unpublished Master Thesis, AAU.

UN, 2006. UN Procurement Practitioner's Handbook. Produced by Interagency Procurement Working Group (IAPWG).

UNDOC, 2013. Guidebook on Anti-Corruption in Public Procurement and the Management of Public Finances .New York, USA: United Nations

UNDP, 2006. Contract, asset and procurement management user guide. New York: UNDP.

Vagstad, S., 2000. Centralized vs. decentralized procurement: Does dispersed information call for decentralized decision-making? *International Journal of Industrial Organization*, No. 18.

Van Weele, A., 2005. *Purchasing and Supply Chain Management: Analysis, Strategy, Planning and Practice*, 4th edition. London: Thomson Learning.

Van A., 2000. *Purchasing and Supply Chain Management*, (4th ed.). Thomson Learning: London.

Weller, C, Pritchard, J., & Maitre, E., 2011. Identifying Opportunities for Sustainable Public Procurement Briefing Series. *Briefing No.3: The guiding principles of public procurement transparency, equal treatment and proportionality*.

Wiehen, M., & Olaya, J., 2006. *Curbing Corruption in Public Procurement*. Berlin, Germany: Transparency International.

Williams, 2015. Multicollinearity, University of Notre Dame. (<https://www3.nd.edu/~r/william/>)

World Bank, 2000. *Can Africa Claim the Twenty First Centuries?* The World Bank, Washington DC.

Young S.C., 1989. Prime vendor/hospital purchasing relationship, *International Journal of Physical Distribution and Logistics Management*, Vol. 19, No. 9.

Zegeye Bekele, 2015. *Factors Affecting Procurement Performance of Public Higher Education Institutions: The Case of Jimma University*. MA Thesis.

**Appendix**  
**ADDIS ABABA UNIVERSITY**  
**SCHOOL OF COMMERCE**

**Department of Logistics and Supply Chain Management**

**Survey Questionnaires to be filled by staffs of the Federal Public Bodies  
involved in Procurement Activities**

**Dear sir/madam**

I am a post graduate student of Logistics and Supply Chain Management in Addis Ababa University School of Commerce. Currently, I am conducting a research entitled with **“Assessment of the centralized public procurement system on the Effectiveness of Organizational operations: A case of federal Public Procurement and Property Disposal Services, Ethiopia”**. The research is conducted in partial fulfillment of Master of Art in Logistics and supply chain management and the information taken from you is used only for academic purpose. Your cooperation is a valuable input for the research findings. So, please provide your genuine opinion. Your response shall be deemed very confidential and useful for this study. Thank you in advance for your kind cooperation and dedicating your time.

If you have any question, please don't hesitate to ask the researcher: Belachew Misganaw 0911949170, [arsemabele@yahoo.com](mailto:arsemabele@yahoo.com).

This questionnaire consists of two parts; kindly answer all the questions by ticking (✓) in the appropriate box and filling in the spaces provided.

**PART I: General Information of the Respondents**

1. Gender      Male       Female
2. Age      Less than 25       25- 30       31- 35       36 - 40       Above 41
3. Educational level?    Certificate     Diploma     Degree     Masters and above
4. What is your profession?    Management     Economics     Engineering     Procurement   
Other specify \_\_\_\_\_
5. What is your position in the organization?    Director     Team Leader     Senior expert   
Expert     Junior expert

6. Your working experience in procurement 0-2 year [ ] 3-5years [ ] 6-10 years [ ] more than 10 years [ ]

**PART II.** Please read each statement and put (√) on the item that suits you as best alternative.

**7. Procurement plan implementation Assessment**

No.	Statement	Strongly Agree(5)	Agree (4)	Somewhat (3)	Disagree (2)	Strongly Disagree(1)
1	Procurement plan can facilitate procurement activity according to user need					
2	Procurement need is planned with full specification and submit to procurement unit on time					
3	Materials procured matches with your plan and specifications					
4	Training about how to prepare procurement plan is provided					
5	Procurement plan is prepared through the involvement and participating of all end users					

**8. Employee's Competence Assessment**

No.	Statement	Strongly Agree(5)	Agree (4)	Somewhat (3)	Disagree (2)	Strongly Disagree(1)
1	Procurement Staffs have recognized professional procurement qualifications or competency					
2	Procurement staffs have skills to procure complex or special items					

3	Procurement staffs have the ability to understand users need, supply markets and suppliers					
4	Procurement staffs have the ability to negotiate with users					
5	Procurement staffs have ability to apply public procurement principles and prepare tender and contract documents on time					

### 9. ICT Adoption Assessment

No.	Statement	Strongly Agree(5)	Agree (4)	Somewhat (3)	Disagree (2)	Strongly Disagree(1)
1	The organization use ICT to facilitates procurement process					
2	The procurement staffs have enough skill to use ICT for the procurement process.					
3	Information Communication Technology has increased the output of procurement officers					
4	There is easily assessable ICT infrastructure that disclose the procurement information					

**10. Operational procedures/management Assessment**

No.	Statement	Strongly Agree(5)	Agree (4)	Somewhat (3)	Disagree (2)	Strongly Disagree(1)
1	There is proper contract management in the					
2	There is appropriate file record management					
3	The organization avoiding unnecessary bureaucratic procedure					
4	Procurement staffs are familiar with the rules and procedures of centralized procurement					

**11. Effectiveness of centralized procurement Assessment**

No.	Statement	Strongly Agree(5)	Agree (4)	Somewhat (3)	Disagree (2)	Strongly Disagree(1)
1	Centralized public procurement system is effective in terms of on time delivery of goods and services for the federal government organizations					
2	Centralized public procurement system is effective in delivering quality goods and services for the federal government organizations					
3	Centralized public procurement system is effective in terms of delivering the required quantity of goods and services for the federal government					

	organizations					
4	Centralized public procurement system is effective in terms of obtaining the right source of required goods and services for the federal government organizations					
5	Centralized public procurement practice is effective in terms of obtaining goods and services with the right price for the federal government organizations					
6	Centralized public procurement practice in the FPPPDS is effective in terms of maximizing customer satisfaction of federal government organizations					