

**PROCUREMENT PRACTICES AND SUPPLY CHAIN PERFORMANCE OF  
SELECTED PUBLIC UNIVERSITIES IN KENYA**

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**DECLARATION**

This research project is my original work and has not been presented elsewhere for a degree or any other award.

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## **DEDICATION**

I dedicate this project to all my family members for their love, support, and encouragement when the challenges seemed endless and for always reminding me to complete my studies, and for their endless patience.

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## **ABBREVIATIONS AND ACRONYMS**

|                |  |
|----------------|--|
| <b>CSR</b>     | Corporate Social Responsibility                            |
| <b>KMO</b>     | Kaiser Meyer Olkin   |
| <b>KPIs</b>    | Key Performance Indicators                                 |
| <b>NACOSTI</b> | National Commission for Science, Technology and Innovation |
| <b>PPADA</b>   | Public Procurement and Asset Disposal Act                  |
| <b>PPOA</b>    | Public Procurement Oversight Authority                     |
| <b>PPRA</b>    | Public Procurement Regulatory Authority                    |
| <b>SCM</b>     | Supply Chain Management                                    |
| <b>SPSS</b>    | Statistical Package for Social Science                     |
| <b>TQM</b>     | Total Quality Management                                   |

## DEFINITION OF TERMS

|                                       |  |
|---------------------------------------|--|
| <b>Financial Resource Management:</b> | The efficient and effective management of money (funds) of a procuring entity by putting in place budgets or vote heads for items planned for procurement during a financial year, in such a manner as to fulfill the purchase requirements by ensuring funds are available before any contract or order is given to the supplier. |
| <b>Inventory Management:</b>          | Controlling the stock by controlling the flow of goods and services as per their demand  |
| <b>Procurement Planning:</b>          | The process of a procuring entity deciding what to buy, when to buy, from what source and the procurement method to be used. It involves need realization/identification and identification of the user requirements.  |
| <b>Procurement Practices:</b>         | A set of activities undertaken by an organization to enable accountable processes for procurement of goods, works and services that aid in effective management of its supply chain.   |
| <b>Public University:</b>             | An educational institution of higher learning in which students study for degrees and academic research is done and is predominantly funded by the government from the exchequer.  |

- Selected Public Universities:** The selected public universities in the Eastern region will include those in the counties of Meru, Isiolo, Tharaka Nithi, Embu, Machakos, Kitui, Makueni, and Marsabit. Whereas those in the Central region will include those in the counties of Kirinyaga, Murang'a, Nyeri, Kiambu and Nyandarua.
- Strategic Partnerships:** It's a mutually beneficial arrangement between the universities and its suppliers and clients and between the procurement department and the user departments in order to enhance the procurement process.
- Supply Chain Performance:** The extent to which supply chain activities are meeting end-customer requirements, including product availability, on-time delivery, and all the necessary inventory and capacity in the supply chain to deliver that performance in a responsive manner.

## ABSTRACT

In any institution, success is majorly determined by the procurement practices adopted and how well these procurement practices are implemented. A function that greatly influences the strategies of an organization, as well as the smooth flow of services, is the procurement function which is built around procurement practices. The study specifically assessed the effect of procurement planning, financial resource management, strategic partnerships and inventory management on supply chain performance. The study adopted a cross-sectional descriptive research design and the target population was 11 selected public Universities in Kenya. Purposive sampling was used resulting in a sample size of 66 staff members who included the heads and deputies of the procurement unit, finance and stores section in the selected Universities. The heads and deputies were chosen because they were in charge of the entire procurement process and are involved in coming up and implementing procurement practices thus they would provide the relevant information for the study. Questionnaires were used to collect data. The data collected was analyzed through descriptive statistics and displayed by the use of tables. Correlation analysis followed by multivariate regression analysis was conducted between the independent variables and the dependent variable. Results showed a positive and strong statistically significant relationship between strategic partnership, inventory management and supply chain performance. The study also established a statistically insignificant relationship between procurement planning, financial resource management and supply chain performance. Among the four variables, strategic partnerships ranked first, inventory management second, procurement planning third while financial resource management ranked fourth. The study concluded that strategic partnerships, inventory management, procurement planning and financial resource management were good measures of procurement practices and supply chain performance. However, more research needs to be carried out to discover the salient variables contributing to supply chain performance to gain full insight into the impact of procurement practices on supply chain performance. The policy implication is that Universities should embark on training of supply chain players to equip them with relevant knowledge on procurement practices and supply chain performance. The research findings will be of help to both public and private entities in the adoption of the best procurement practices that aid in enhancing performance of their supply chains.

# **CHAPTER ONE**

## **INTRODUCTION**

### **1.1 Background of the Study**

Procurement is an ever-growing means of conducting business in many industries around the world. In every institution, procurement serves as one of the core functions of the entity as the procurement processes enable an organization to function seamlessly. Procurement can be described as the process of sourcing for goods and services from external sources, negotiating the prices and obtaining the goods and services for the benefit of the institution (Karanja & Kiarie, 2015). According to the Public Procurement and Asset Disposal Act (2015) "Procurement" means the acquisition by purchase, rental, lease, hire purchase, license, tenancy, franchise, or any other contractual means of any type of works, assets, services or goods including livestock or any combination and includes advisory, planning and processing in the supply chain system.

Developing countries have been awakened to the importance of effective management of the public procurement process at both central and local government levels, and its subsequent contribution to improved governance of the public sector. Procurement; a function that was traditionally viewed as a clerical and reactive task has since positioned itself among core organizational functions, and its management is becoming increasingly critical for the well-functioning of any organization. Procurement is becoming important at the local level, in parallel with decentralization and the increasing range of functions performed by local governments in most countries (Schiavo-Campo & Sundaram, 2000). Moreover, Bowersox, Closs and Cooper, (2002) hold that every organization, whether it is a manufacturer, wholesaler, or retailer, buys materials, services and supplies to support operations. They add that historically, purchasing was perceived as a clerical or low-level managerial activity charged with the responsibility to execute and process orders initiated elsewhere in the organization. The role of purchasing was to obtain the desired resource at the lowest possible purchase price from a supplier. This traditional view of purchasing has changed substantially in the past several decades. As a result, procurement has been elevated to a strategic activity.

The role of procurement practices in business setups has become more important and changed abruptly, from the perceived role of administrative and clerical to a strategic position to attain a competitive advantage in the organizations (Allal-Chérif & Maira, 2011). Turner (2011) holds that the adoption of procurement practices presents a paradigm shift from traditional practice hence the need to utilize its value proposition to achieve competitiveness in the procurement arena.

### **1.1.1 Procurement Practices**

Procurement practices are a set of activities undertaken by an organization to promote effective management of its supply chain (Sollish & Semanik, 2012). Modern procurement practices are dynamic and interconnected networks that are gradually lengthening and globe-spanning (Christopher, 2012). Procurement practices integrate various firms' operations and support functions, synchronizing production with new orders, purchasing with demand, scheduling and shipping with customer requirements (Brien, 2011). According to Brien (2011), well-implemented procurement practices in an organization form an efficient, quick and accurate management tool that reduces cycle time and builds reliability, thereby impacting positively on organizational performance. Procurement practices that the study will adopt are procurement planning, financial resource management, Strategic partnerships and inventory management.

### **1.1.2 Supply Chain Performance**

A Supply chain is the set of value-adding activities connecting the enterprise's suppliers and its customers. This set of activities enable an institution to meet customer requirements, guarantee on-time product availability and delivery, inventory and stock taking processes that enhance performance in an efficient manner. The principle of supply chain activity is receiving input from the firm's suppliers – add value – deliver to customers (Simchi-Levi, Kaminsky & Edith, 2003). Performance of the supply chain is viewed as a competitive strategy that enhances an institution's productivity and profitability and the intensity of these measures which are resource, output and flexibility



based. The resource focuses on a high level of efficiency, while output focuses on a high level of customers and customer retention, and flexibility focuses on response to changing environment in the success of any firm cannot be overlooked as it affects long term, short term and operational planning and control (Opio, 2016).

### **1.1.3 Relationship between Procurement Practices and Supply Chain Performance**

There is a distinct relationship between procurement practices and supply chain performance in that the procurement processes determine the supply chain performance efficiency in terms of product delivery and maintenance of timelines. A Supply chain is the set of value-adding activities connecting the enterprise's suppliers and its customers. It involves many players including customers, manufacturers, suppliers, logistics providers and suppliers of goods and services. Procurement is the glue that holds the entire supply chain players into place as it coordinates the activities among the players in the supply chain to ensure each member plays their role effectively and efficiently thus ensuring the smooth flow of activities in the chain. Thus procurement practices put in place to coordinate all the activities in the chain will determine the efficiency and effectiveness of the entire supply chain, its flexibility to respond to market dynamics and ultimately impact on the entire performance of the supply chain.

### **1.1.4 Procurement in Public Institutions in Kenya**

The public procurement system in Kenya has undergone reforms consistent with global trends since the mid-'90s, most notably within the periods covering 1997-2001 and 2005 which was the landmark of the reforms which saw the enactment of the Public Procurement and Disposal Act, 2005 and Public Procurement and Disposal Regulations, 2006 which amended all other laws relating to procurement in public entities ensuring that all of it is done under the umbrella of the Act thus widening the scope of application of the law and providing a proper basis for enforcement (RoK, 2007). The Act also established an oversight body, the Public Procurement Oversight Authority (PPOA), to act as a regulator of all procurement activities carried out by the public entities and ensure compliance with the Act. Before these reforms, the legal framework governing public procurement was very

amorphous, providing a conducive environment for the perpetration of various malpractices in public procurement including the endemic corruption that characterized the system (RoK, 2007). The public procurement reform agenda saw the operationalization of a new public procurement Act, the Public Procurement and Asset Disposal Act 2015 on 7<sup>th</sup> January 2016 which has shaped the procurement practices in Kenya in terms of new standards. This further put procurement at a strategic level and among the key decision-makers (Opio, 2016).

### **1.1.5 Procurement in Public Universities**

Since the mid-1980s, there has been a significant expansion of public universities in Kenya in response to higher demand for university education. So far, 30 public universities have great opportunities stemming from the increasing number of students both from within and outside the country. This has increased the number of purchases of services and goods by the universities required to meet the needs of the student population (Chesang, 2013). This increase in the purchase of goods and services by the universities has resulted in a big percentage of university expenditure in Kenya going towards procurement of goods and services which therefore calls for proper procurement practices that enhance supply chain performance to allow for the smooth flow of services in the universities.

Universities are public entities whose main source of funding is the government and making a procurement to which the ACT and regulations apply. Universities are categorized under class B. (RoK, 2009). Universities, just like other government institutions, participate in nation-building through training, research and innovations and science and technology. The public universities must carry out procurement activities per the ACT, Regulations, Standard Tendering Documents Manuals and any directions from the PPRA and all have a procurement unit which is under planning, administration and finance department and is involved in procurement and supply of goods and services that are essential for the core activities of the faculties, institutes, departments, offices and other units (Chesang, 2013).

## **1.2 Statement of the Problem**

Procurement and related processes remain one of the most challenging aspects of institutions in Kenya, more so for public institutions. Procurement is perceived as a loophole for many entities to gain extra access to monies and encourage corruption for services and goods procured. Thus, there have been efforts made for reforms in the area and this has been conducted via joint efforts between the government institutions and development partners such as the World Bank, International Trade Centre and the World Trade Centre. Despite efforts by public entities in developing countries like Kenya and development partners like the World Bank to improve the performance of the procurement function and supply chain in general, procurement is still marred by shoddy works, poor quality goods and services and inefficient supply chains. This perennial problem has precipitated a decline in procurement/supply chain performance in public entities (Sanjay, 2000).

Public Universities are faced with budgetary constraints arising from lower budgetary allocations and ever-increasing costs of goods, works and services. Therefore, a comparison of the large proportion of money spent stemming from the high volume of procurement of goods, works and services versus the challenge of budgetary constraints arising from lower budgetary allocations and ever-increasing costs of goods, works and services, clearly calls for proper management of the procurement activities and formulation of sound procurement practices that best suit public universities. This ensures that Universities not only comply with the provisions of the ACT but also ensures effective and efficient management of the scarce resources for the smooth running of the universities with a view of enhancing supply chain performance. Moreover, the creation of environments where performance and comfort are key for the employees is critical in encouraging the adoption and implementation of positive procurement practices. Key Performance Indicators and focus on an individual's performance is a strategy that can be embraced by universities to encourage efficiency and productivity which then enhances supply chain performance. Therefore, given the challenges faced by public universities regarding procurement and related processes and

challenges arising from budgetary constraints arising from lower budgetary allocations and ever-increasing costs of goods and services, this study seeks to establish the effects of procurement practices on supply chain performance in selected Public Universities in Kenya specifically in eastern and central regions.

### **1.3 Objective of the Study**

This study was guided by the following general and specific objectives:

#### **1.3.1 General objective**

The general objective of the study was to evaluate the effect of procurement practices on supply chain performance in selected Public Universities in Kenya.

#### **1.3.2 Specific Objectives**

The study was guided by the following specific objectives:

- i. To investigate the effect of procurement planning on supply chain performance in selected Public Universities in Kenya.
- ii. To evaluate the effect of financial resource management on supply chain performance in selected Public Universities in Kenya.
- iii. To determine the effect of strategic partnerships on supply chain performance in selected Public Universities in Kenya.
- iv. To assess the effect of inventory management on supply chain performance in selected Public Universities in Kenya.

### **1.4 Research questions**

This research sought to answer the following questions:

- i. What is the effect of procurement planning on supply chain performance in selected Public Universities in Kenya?
- ii. What is the effect of financial resource management on supply chain performance in selected Public Universities in Kenya?

- iii. What is the effect of strategic partnerships on supply chain performance in selected Public Universities in Kenya?
- iv. How does inventory management affect supply chain performance in selected Public Universities in Kenya?

### **1.5 Scope of the Study**

The research was conducted in all the eleven (11) selected public universities found in the Eastern and Central region of Kenya which included; Meru University of Science and Technology, Chuka University, University of Embu, South Eastern Kenya University, Machakos University, Kirinyaga University, Karatina University, Murang'a University of Technology, Dedan Kimathi University of Technology, Jomo Kenyatta University of Agriculture and Technology and Kenyatta University.

### **1.6 Justification of the Study**

Public universities and other public organizations stand to benefit by obtaining relevant information on adoption of the best procurement practices that enhance performance of their supply chains and in identifying loop holes in the supply chain. Policy makers like the Ministry of Education, the Public Procurement Regulatory Authority will get relevant information to enable them develop policies to govern procurement in public universities in Kenya.

The procurement managers and procurement departments especially in public institutions benefit by gaining insight on how to best deliver to improve their productivity, profitability and image as well as provide a platform for the procurement departments to analyze how the instituted procurement practices have contributed to supply chain performance as well as identify the loopholes that may be of hindrance to supply chain performance.

The study contributes to the existing knowledge and literature on procurement practices and supply chain performance. Researchers and scholars, therefore, benefit from the findings of this study because it forms the basis of identifying knowledge gaps for future research.

### **1.7 Limitations of the study**

Conventionally, respondents may not always be truthful and instead may tailor their responses to fit what they deem the study seeks to address, thus failing to give the true picture of the situation in the institution, this was one of the main challenges this study faced. To address this, the researcher availed the University's approved introduction letter and also a letter from NACOSTI, to assure respondents that the information given would be treated with the utmost confidentiality and could only be used for academic purposes.

Data collection was a challenge since most of the respondents could not be reached online and given the dispersed status of public universities in Kenya, the researcher had to physically travel to the selected Universities to administer the questionnaires and also had to wait until the respondents filled the questionnaires which had financial implications and also slowed down the research process.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

This chapter involves locating, reading and evaluating reports of previous studies, observations and opinions related to the study. This chapter covers theoretical review, empirical review, conceptual framework, a summary of the literature review and research gaps.

#### **2.2 Theoretical Literature**

This section provides the theoretical framework, and two key theories were used to inform this study namely, general systems theory and institutional theory.

##### **2.2.1 General Systems Theory**

General Systems Theory was modeled by Ludwig (1950) and the theory relates to the functioning of organizations with how living organisms function. The theory states, from a biological point of view, that, an organism is an integrated system of interdependent structures and functions made up of cells, and a cell contains molecules, which must work in harmony. Each molecule must know what others are doing, must be capable of receiving messages and must be sufficiently disciplined to obey. Due to the complexity and instability of the external environment, the survival and effectiveness of an organization will depend on how well it scans and adapts to its internal environment.

This theory, informs this study as procurement is a function whose functionality spans across all departments in an organization. Moreover, for an organization to create an effective and efficient supply chain each player; user departments, procurement department and suppliers; in the supply chain must perform their roles. Also, for procurement practices such as procurement planning, financial resource management, strategic partnership and inventory management to be implemented successfully in an organization it requires the support of the various user departments and for each user department to play their roles in achieving the overall goals of the procurement

management practice without any frictions or tensions within the system or practice for there to be efficient in its operations.

### **2.2.2 The Institutional Theory**

Institutions are composed of cultural-cognitive and regulative elements that together with associated activities and resources give meaning to life (Scott, 2003). The theory further explains the three pillars of institutions as regulatory (policy), normative and cultural cognitive. The regulatory (policy) pillar emphasizes the use of rules, laws and sanctions as an enforcement mechanism with emphasis on compliance. The normative pillar refers to norms-how things should be done and the values preferred desired. The cultural pillar rests on shared understanding (common beliefs and symbols). Borrowing from this theory, all public procuring entities are guided by rules and regulations drawn from the public procurement act RoK (2015) hence each procuring entity has a mandate to develop and implement sound procurement practices within its procurement systems, hence the need to have policies, norms and rules to that effect. The three pillars of institutions such as organizational culture, social influence, organizational incentives and enforcement are identified as antecedents of compliance to public procurement law and are key pre-requisites for the successful implementation of sound procurement practices which in turn enhance the performance of the procuring entity's supply chain hence improved service delivery.

### **2.3 Empirical Literature**

This section reviews the works of other researchers in the area of procurement practices, specifically focusing on the effect of procurement planning, financial resource management, strategic partnerships and inventory management on supply chain performance.



### **2.3.1 Supply Chain Performance**

Supply chain performance is the extent that supply chain activities are meeting end-customer requirements, including product availability, on-time delivery, and all the necessary inventory and capacity in the supply chain to deliver that performance responsively. Supply chain performance enables firms to drive rapid change in all aspects of operations. This requires end-to-end visibility into factors that drive performance such as cash-to-cash cycle time, overall supply chain cost or perfect order fulfillment (Oloruntoba & Gray, 2006).

Supply chain performance measures are categorized into supply chain processes that are either quantitative or qualitative measures and the achievement or non-achievement of these indicators can be directly traced to procurement practices (Shepherd & Günter, 2005) categorized, therefore, the study will adopt customer satisfaction, quality of goods and services, on-time delivery and cost savings as indicators of supply chain performance.

### **2.3.2 Procurement Planning**

Planning is a process that consists of many steps and the bottom line is that planning is not concerned with future decisions but rather with the future impact of decisions made today (Thai, 2008). According to the RoK (2009), the beginning of the procurement process is need-realization/identification and identification of the requirements. This should be participatory by involving the users whereby they forward their departmental plans. This is informed by the inventory status, projects plan, production schedules, work plans, capital or operational requirements, budgets and the procurement plan.

According to Ocharo (2013) on factors affecting procurement performance: a case of Ministry of Energy identified procurement planning as a factor and argues that a procurement plan describes and documents all of the purchases from outside suppliers that will be needed to support the needs of a particular department. Outlining the needs of the project and how the supplies will be procured allow for adequate budget and

proper planning. Moreover, annual procurement plans draw departments' early attention to potential procurement opportunities through a strategic procurement outlook statement, supported by details of planned procurements. The respondents stated that the procurement plans influenced procurement performance in the sense that they provided focused and efficient utilization of the available resources, helped in budgeting and planning and therefore with adequate provision of funds due to procurement plans, performance is assured. More so, the respondents indicated that procurement plans helped to know what to buy, when, how and using which method of procurement. This study affirms the importance of procurement planning in ensuring procurement performance. This research will try to establish whether this situation applies when it comes to the performance of the entire supply chain of public universities.

Agreeably Onyango (2012) in a study on effects of procurement planning on institutional performance: a case study of Mombasa Law Court concludes that procurement plans influence procurement performance in the sense that they provide focused and efficient utilization of available resources, help in budgeting and planning and therefore with adequate provision of funds due to procurement plans, performance is assured. This research will therefore seek to establish the effect of procurement planning on supply chain performance in public universities in counties in the eastern and central region of Kenya. The indicators of this variable will be the planning process, participatory planning, adherence to procurement plan and timely procurements.

Similarly, research was done by Patrick & Wallace (2016) on factors affecting procurement planning in public secondary schools in Kenya: a case study of secondary schools in Migori County revealed that procurement planning positively impacts procurement service delivery in secondary schools to a large extent. The study further recommended that procurement plans should not be static and that their preparation should be participatory, frequently reviewed to improve on achieving value for money in secondary schools.

### **2.3.3 Financial Resource Management**

Financial resource management is an important aspect of the supply chain as for the activities of a supply chain to move smoothly finances must be available and well managed across the supply chain. In developing countries, public procurement is increasingly recognized as essential in service delivery and it accounts for a high proportion of total expenditure (Basheka & Bisangabasaija, 2010).

Research by Namusonge (2013) on the effect of financial resources on procurement planning in public institutions in Kenya: a case study of Kenya Airports Authority asserts that financial resources are very important in other functions that are directly and indirectly related to the procurement of goods and services. Resources are required to purchase goods and services. Without adequate financing, the actual procurement function cannot be undertaken. Funds are also required for certain activities such as training of employees on procurement issues, research and development in fields of purchasing and consultancy on procurement and logistics. The study focused on financial resources and its effect on procurement planning which is just one aspect of procurement. This study will focus on the entire procurement process spanning from planning, financial resources to inventory management and also look at strategic partnerships with the supply chain clients and will also look at the supply chain performance. Moreover, the methodology used in this study is a case study while this study will adopt a descriptive survey.

A study by Ocharo (2013) on factors affecting procurement performance: a case of Ministry of Energy identified resource allocation as a factor and the respondents indicated that funds allocation for procurement influences procurement performance to a large extent. From the findings, 87% of the respondents indicated that the funds allocated to the departments for procurement were largely inadequate with the rest (13%) indicating that they were not adequate. The respondents further indicated that funds allocated for procurement influence procurement performance to a large extent. Even though there was the inadequacy of funds allocated to the departments for

procurement, resource confirmation and resource allocation help make procurement effective when carried out appropriately. The study affirms the role of financial resource management plays in ensuring the performance of the procurement department. However, this paper failed to look into the budget formulation and implementation and its linkage with the procurement and entire supply chain process. This is because the way budgetary allocations are implemented determines the success or failure of any supply chain.

#### **2.3.4 Strategic Partnerships**

A strategic supply chain partnership is a collaborative coalition of two or more firms in a market to facilitate joint efforts collaborations in one or more core value-creating activities, which include research, product development, marketing, sales and distribution. The objective of the supply chain partnership is to reduce costs of acquisition, possession and disposal of goods and services (Maheshwari, Kumar & Kumar 2016).

A study by Kiprop (2015) on the impact of supply chain management practices on the performance of banks in Kenya: a case of Postbank defined strategic partnerships as a collaborative coalition of two or more firms in a market to facilitate joint efforts collaborations in one or more core value-creating activities, which include research, product development, marketing, sales and distribution. The study further points out that supply partnership is one of the most popular hybrid organizational terms. It has been adopted by firms to manage inter-organizational collaboration in the supply chain. It provides both large and small firms with numerous opportunities to improve their conduct of business such as wider diffusion of the products without a costly physical presence in the market risk and reward sharing, resource pooling, reduction in coordination and transaction costs, ability to concentrate on core competency and rapid response to the market need.

Supply chain partnership impacts significantly on the performance of an organizational supply chain performance and it also acts as a tool-making the organization achieves a competitive advantage over other organizations (Maylee and Veeke, 2006). A strategic supplier partnership includes buying goods and services from suppliers and impacting the supplier's system and operational capabilities, adding value and improving the supply chain performance (Sufian, 2010). However, Nantege (2011) is of the view that for many suppliers it will not be necessary to spend significant resources building a relationship, and an operational-type management style will be sufficient, but for others, it may be necessary to enter into full relationship management. This will not be a simple option but it requires a drive for continuous improvement and on-going communication management, cost management and benchmarking to effectively and efficiently realize its potential.

Customer relationship is the entire array of practices that are employed to manage customer complaints, building long-term relationships with customers, and improving customer satisfaction (Li and Lin, 2006) stated that Vickery, Jayaram, Droge and Calantone (2003) emphasized the importance of establishing a close customer relationship as a major practice of supply chain integration to enable organizations to respond faster to customers. Moreover, good relationships with supply chain members, including customers, are needed for the successful implementation of supply chain programs.

The studies reviewed looked into partnership from one aspect of the clients that a supply chain serves. That is they looked into the supplier partnership only without looking into the internal customers or looked into the internal customer and overlooked the external suppliers' something that the current study will look into. Besides, the current study will look at the needs and expectations of each party and the obligations towards the other party. This is because, for the activities of a supply chain to flow smoothly, each party's obligations towards the other have to be met.

### **2.3.5 Inventory Management**

Inventory doubles up as money is held in terms of stock. Thus for any supply chain to be deemed efficient and effective, it should meet the customer requirements at the minimum cost. Thus good inventory practices enhance supply chain performance in terms of reduced costs and increased responsiveness to customer demands used by organizations to achieve supply chain performance. The organization's inventory is an important component and its management is vital to the success and cost reduction of the firm's expenditure (Mwangi, 2013).

Inventory management is all the activities put in place to ensure that customers have the needed product or service (Miller, 2010). Inventory management coordinates the purchasing, manufacturing and distribution functions to meet the marketing needs and organizational needs of availing the product to the customers. Similarly, Ogbo & Onekanma (2014) adds that the scope of inventory management concerns the fine lines between managing the replenishment lead time, replenishment of goods, returns of defective goods and demand forecasting, carrying costs of inventory, asset management, physical inventory, available physical space, demand forecasting, inventory valuation, inventory visibility, future inventory price forecasting and quality management and with a balance of these requirements, it is possible to reach an optimal inventory level, which is an on-going process as the business needs shift and react to the wider environment. Garcia, Ibeas, Herrera & Vilanova (2012) argue that the main objective of inventory management is to keep the inventory level of each element of the supply chain stable enough to satisfy the requirement of the customers by ordering products from its immediate supplier of the supply chain. Further Khan, Bakkappa, Bhimaraya & Sahay (2009) quoted that proper inventory management improves the responsiveness of supply chains, which in lieu adds to the organizational performance. Thus the alignment of supply chain strategy, inventory management and product characteristics are extremely important for the successful operations of a company (Srinivas, 2013).

A study by Chalotra (2013) on inventory management and small firms' growth defined inventory management as controlling the business stock or controlling the flow of goods and services as per their demand. The study also suggested that for proper inventory management, services of intermediaries are required which is often known as supply chain and inventory holding plays an important role in modern supply chains and that the overall supply chain should be structured to meet the needs of different products and customer groups to ensure effective inventory turnover Singh (2011) observes that inventory management across the supply chain is a big challenge for improving coordination among members of the value chain. Aarti and Modi (2013) have it that, inventory needs proper control because it becomes the largest assets of a business and organizations would ideally want to have enough inventories to satisfy the demands of its customers and not to lose customers due to inventory stock-outs on the other hand, the organization does not want to have too much inventory staying on hand because of the cost of carrying inventory, thus enough but not too much is the ultimate objective. The current study will look into every aspect of inventory management adopting inventory records accuracy, inventory investment and inventory turnover as indicators, something that the reviewed literature does not look at.

#### **2.4 Conceptual Framework**

Conceptual framework is a detailed description of the phenomenon under the study accompanied by the graphical or visual depiction of the major variable of the study (Kothari, 2014). According to Neuman (2010) conceptual framework is diagrammatical representation that shows the relationship between dependent variable and independent variables.

The framework presupposes that supply chain performance was the dependent variable, while the independent variables were the procurement practices, which are procurement planning, financial resource management, strategic partnerships and inventory management, as shown in Figure 1.

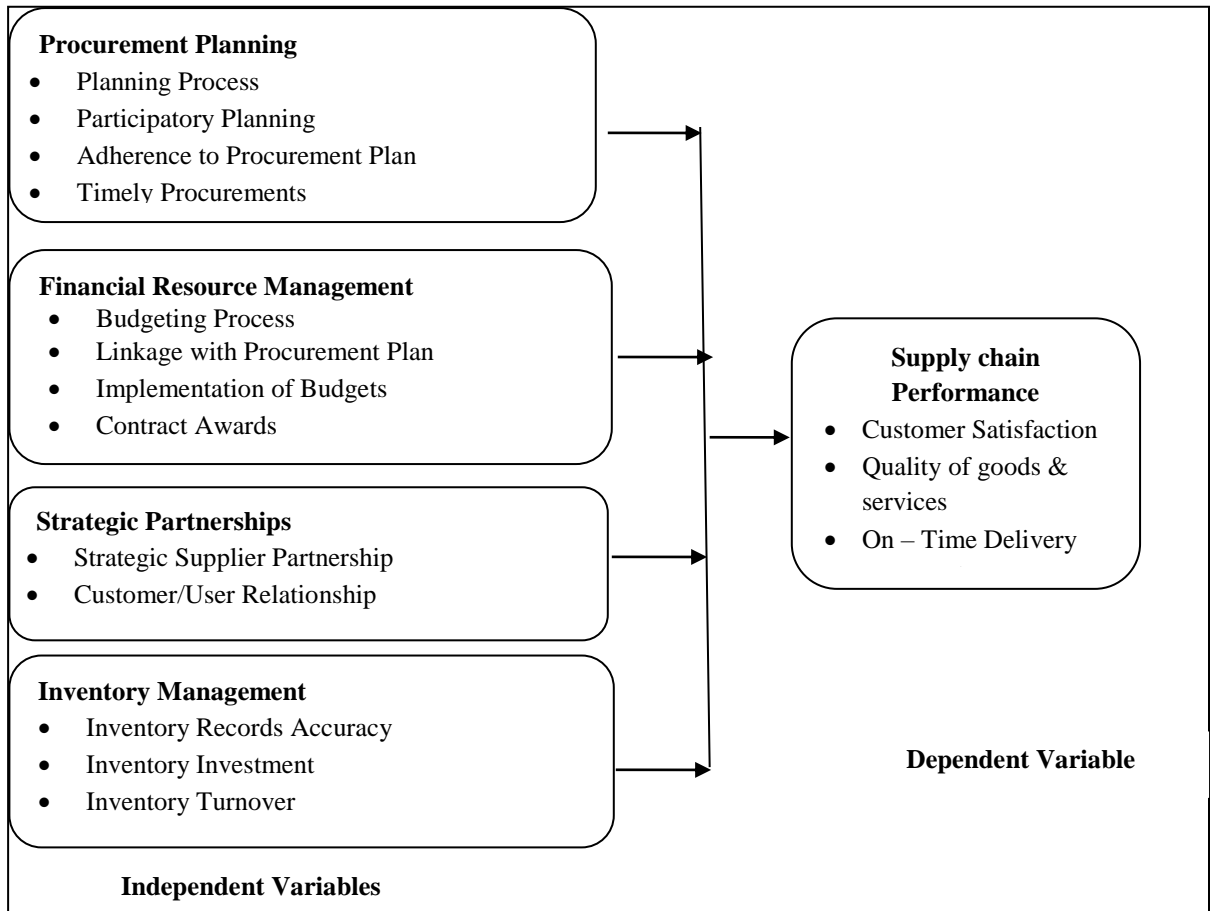


Figure 1: Conceptual framework of procurement practices and supply chain performance in selected Public Universities in Kenya.

Figure 1 shows the relationship between procurement practices as the independent variable and supply chain performance as the dependent variable. The study focused on the following indicators to analyze the dependent variable; customer satisfaction, quality, on-time delivery and cost reduction. The independent variable focused on procurement planning whose indicators were planning process, participatory planning, adherence to procurement plan and timely procurements. Financial resource management indicators were adequacy and proper allocation of financial resources, budget reviews to cater to changes in the economic environment, contract awards based on resources and contract based on resource availability and confirmation. The study specifically considered financial resource management since the biggest resource in procurement is financial resources, as no procurement can proceed without the existence



of funds and the majority of an entity's expenditure goes towards procurement of goods, works or services. Strategic partnerships indicators included strategic supplier partnership and customer/user relationship. Regarding inventory management, the study was interested in inventory records accuracy, inventory investment and inventory turnover. The independent variables; procurement planning, financial resource management/ allocation, strategic partnerships and inventory management are projected to impact the dependent variable supply chain performance.

## **2.5 Summary of Reviewed Literature**

It is evident from the literature review that studies on procurement practices in organizations and supply chains have been carried out; Odero (2017) carried out a study on the effect of procurement practices on procurement performance of public sugar manufacturing firms in western Kenya and the study finding revealed that procurement planning had a positive and insignificant relationship with procurement performance while staff competence had a positive and significant effect on procurement performance. This study drew the procurement practices from both the internal and external environments and systems of an organization.

A study carried out by Opio (2016) on procurement practices and supply chain performance of telecommunication firms in Kenya established that all firms in the telecommunication industry employed had adopted procurement practices, and the practices contributed highly to supply chain performance. The rationale behind the adoption was to streamline and make the procurement process more efficient; enhance the centralized procurement system hence reduce costs. This study adopted procurement planning, financial resource management, strategic partnerships which focused both on the supplier and the customers which Opio (2016) did not look at.

A study by Ngunyi (2014) on procurement practices and the performance of parastatals in Kenya revealed that the study concluded that parastatals had adopted various forms of procurement practices and they had recognized the importance of procurement practices as a catalyst to improving the performance of the firms. The study concluded

that if procurement practices are employed effectively, then it's expected to improve firm – customer relationships, preserve the environment, motivate and improve the coordination of staff. This study looked at procurement practices and their effect specifically on supply chain performance as opposed to the entire organizational performance.

A study Makabira (2014) on the role of procurement practices on the performance of corporate organizations in Kenya: A case study of Kenya National Police Service revealed that procurement practices; procurement planning, procurement control, Procurement monitoring were adopted and they have enhanced their performance. The methodology used in this study was descriptive study and in addition to procurement planning, the study focused on financial resource management, strategic partnerships with the procurement clients and inventory management along which the planning, training and monitoring and control spans.

A study by Rotich (2014) on dynamic procurement practices and supply chain performance of supermarkets in Nairobi, Kenya revealed to a very great extent that through the adoption of these practices the supermarkets realized reduced inventory levels and stock-out number, the realization of efficient customer response and the supermarket has generally improved its customer service. This research focused on procurement practices in public universities which are publicly funded by taxpayers' money and who are governed by the public procurement law.

A study carried out by Namusonge (2013) on the effect of financial resources on procurement planning in public institutions in Kenya: a case study of Kenya airports authority revealed that financial resource affected procurement planning. The organization did have financial budgets for the financial year however these budgets were insufficient to the procurement needs thus affecting the procurement process and procurement plans. This study focused on the entire procurement process spanning from planning, financial resources to inventory management and also looked at strategic partnerships with the supply chain clients and also looked at the supply chain performance.

## **2.6 Summary of the Research Gaps**

It was evident from the literature review that studies on procurement practices in organizations and supply chains have been carried out; However, the literature review reveals that most studies done on procurement practices and supply chain performance fail to look into the practices encompassing the entire procurement process spanning from planning to inventory management. This is important since procurement is a process involving various players and processes in the chain of supply. The chain cannot flow smoothly if only one aspect is effective and efficient while the others are not. Therefore, the current study sought to establish the effects of procurement practices on supply chain performance in Public Universities in counties in the eastern and central region of Kenya. A summary of the research gaps is presented in Appendix V.

## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.1 Introduction**

This chapter describes the method that was applied in carrying out the study. It details the research design, target population, sampling technique and sample size, data collection instruments, data collection procedure, pre-testing of the data collection instrument and data processing and analysis.

#### **3.2 Research Design**

The study adopted a cross-sectional descriptive research design. The design allows the researcher to come up with descriptive statistics that can assist in explaining the relationship that exists among variables (Oso & Onen, 2010). The research design addressed what and how questions of the study in terms of procurement practices and supply chain performance of the study. Kombo and Tromp (2013) observe that the goal of cross-sectional descriptive design is to offer the study a profile or describe relevant aspects of the phenomena of interest from the individual, organization, industry or other perspective. In addition, the design best fits in the ascertainment and description of characteristics of variables in this research study and allows for use of questionnaires and interviews. Cross-sectional descriptive designs are often inexpensive and are relatively conducted faster (Mugenda & Mugenda, 2014).

#### **3.3 Target Population**

The target population for this study is comprised of 11 public universities in counties in the eastern and central regions of Kenya. Public Universities were chosen instead of Private Universities since Public Universities as opposed to Private Universities are government-funded and thus operate under the umbrella of the Law; Public Procurement and Asset Disposal Act (PPADA) 2015 and Public Procurement Regulations 2020 which provide guidelines on how any procurement is to be carried out, which provides a basis for comparison. Purposive sampling was used thus the study focused on the head of procurement, deputy head of procurement, in charge stores, the

deputy in charge stores, head of finance and deputy head of finance. The heads of these departments and sections and the deputies were chosen because they are in charge of the entire procurement process and were involved in coming up and implementing procurement practices that enhanced the performance of the organizations and thus would provide the relevant information required for the study.

The target population comprised of 66 members of staff as shown in Table 3.1. The unit of analysis was respondents in each selected public university.

**Table 3. 1: Target Population of the Study**

| <b>University</b>                                    | <b>Procurement</b> | <b>Stores</b>  | <b>Finance</b>    | <b>Total</b>      |
|--|--------------------|----------------|-------------------|-------------------|
|  | <b>Department</b>  | <b>Section</b> | <b>Department</b> | <b>Population</b> |
| Meru University of Science & Technology              | 2                  | 2              | 2                 | 6                 |
| Chuka University                                     | 2                  | 2              | 2                 | 6                 |
| University of Embu                                   | 2                  | 2              | 2                 | 6                 |
| Machakos University                                  | 2                  | 2              | 2                 | 6                 |
| South Eastern Kenya University                       | 2                  | 2              | 2                 | 6                 |
| Kirinyaga University                                 | 2                  | 2              | 2                 | 6                 |
| Karatina University                                  | 2                  | 2              | 2                 | 6                 |
| Dedan Kimathi University of Technology               | 2                  | 2              | 2                 | 6                 |
| Murang'a University of Technology                    | 2                  | 2              | 2                 | 6                 |
| Jomo Kenyatta University of Agriculture & Technology | 2                  | 2              | 2                 | 6                 |
| Kenyatta University                                  | 2                  | 2              | 2                 | 6                 |
| <b>Total</b>   | <b>22</b>          | <b>22</b>      | <b>22</b>         | <b>66</b>         |

### **3.4 Census**

The study adopted a census survey of all the 11 selected Public Universities in Kenya since this number was small for sampling. According to Kothari (2014) a census survey involves complete enumeration of the population because the unit of analysis is too small for sampling.

### **3.5 Data Collection Instruments**

The research mainly relied on primary data which was collected using a structured questionnaire. The responses to the questionnaire were designed on a 5-point Likert scale of measurement of strongly agree, agree, neutral, disagree and strongly disagree. Questionnaires were preferred since they allowed respondents to give much of their opinions relating to the researched problem and information obtained from questionnaires is free from bias and researcher's influence and thus accurate and valid data would be gathered.

### **3.6 Data Collection Procedure**

The researcher first sought authority from the relevant individuals of each of the universities by giving a brief introduction and presenting a letter of introduction and a research permit from National Commission for Science, Technology & Innovation (NACOSTI) in order to assure them that the research was authorised. Once authority was granted, the researcher gave a brief introduction to the respondents before self-administering the questionnaire with the aim of explaining the questionnaire. Confidentiality was assured to the respondents through the letter of transmittal that accompanied the questionnaire (Kothari, 2014). A total of 6 questionnaires were administered in each university. A total of 66 questionnaires were administered through the drop and pick later method. Each questionnaire was then coded and only the researcher got to know which person responded (Neuman, 2010).

### **3.7 Pre-testing of the Research Instrument**

The study used the internal consistency technique by employing the Cronbach alpha coefficient test, to test the research tool. The scores attained from different items in the questionnaire were correlated and Cronbach's alpha coefficient (Cronbach, 1951) was then computed to determine the correlation between the items, where a coefficient above 0.7 was acceptable. Validity was established by seeking the views, opinions and suggestions of experts in the area of study. Therefore, the questionnaire was given to the supervisors of this study and a lecturer in the area of study for verification to get their views and suggestions. This enabled the necessary modification and revision of the research instrument thereby enhancing validity.

### **3.8 Data Processing and Analysis**

Data collected was checked for completeness before analysis was done and was analyzed quantitatively to the study objectives. The data was then coded into logical, descriptive, and meaningful categories to provide a framework for analysis. Quantitative data obtained from the closed-ended questions was analyzed through descriptive statistics by tallying up responses, calculating the percentages, frequencies, means and standard deviations by use of SPSS as they were the appropriate statistical tools to show the distribution against each of the variables under investigation. The information was presented by the use of tables. Regression analysis was done to establish the relationship between procurement practices and supply chain performance in the selected public universities in Kenya.

The study also utilized correlation and multiple regression analysis to determine the relationship between procurement practices and supply chain performance of selected Public universities in Kenya. Multiple regression analysis was specifically preferred as it contains a model goodness of fit to show the percent of supply chain performance being attributed to the conceptualized study variables. Multiple regression analysis is adopted when the study has one dependent variable which is assumed to be a function of two or more independent variables (Mugenda & Mugenda, 2014). A univariate

analysis which is the distributional properties of a variable was carried out first for each variable to describe that variable and as a preparation for multivariate analysis. The study used F-statistics at a 5% confidence level to test the dependence of supply chain performance of the selected universities on procurement practices. Thus, the study employed multiple linear regressions in its multivariate analysis as summarized in equation 3.1.

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon \text{-----} 3.1$$

Where; Y was supply chain performance,  $\beta_0$  the intercept constant,  $X_1$  procurement planning,  $X_2$  Financial resource management  $X_3$  Strategic partnerships and  $X_4$  was inventory management,  $\beta_1 - \beta_4$  was the corresponding coefficients of independent variables and  $\varepsilon$  was the error term.



## CHAPTER FOUR

### RESEARCH FINDINGS AND DISCUSSIONS

#### 4.1 Introduction

This chapter presents the findings of the study in form of the response rate, background information of the respondents, descriptive statistics, correlation analysis, regression analysis and discussion of the findings.

#### 4.2 Response Rate

A total of 66 questionnaires were administered to heads and deputies of procurement, in-charge stores and deputy in-charge stores and heads and deputies of finance in each of the selected public universities. Out of the distributed questionnaires, 56 were filled and returned translating to an 84.85% response rate as shown in Table 4.1. Babbie (2010) recommended that a return rate of 60% and above is good. This is also above 50% which is considered by Kothari (2014) as adequate in descriptive statistics. This indicates that the response rate was sufficient and falls within the recommended threshold.

**Table 4. 1: Respondents Response Rate**

| <b>Response</b> | <b>Frequency</b> | <b>Percentage (%)</b> |
|-----------------|------------------|-----------------------|
| Actual Response | 56               | 84.85                 |
| Non-Response    | 10               | 15.15                 |
| <b>Total</b>    | <b>66</b>        | <b>100</b>            |

#### 4.3 Pre – Testing Results of Research Instrument

Cronbach's alpha was used to test the reliability of the research instrument. It was computed in terms of the average inter-correlations among the items set to measure the concepts. Cronbach's alpha rule of the thumb is that the closer the value is to 1 the higher the reliability (Neuman, 2010). The results of the Cronbach's alpha coefficients for the tested items ranged from 0.837 to 0.903. The instrument, therefore, met the threshold value of 0.7 and above that is recommended by Cooper and Schindler (2011)

and Ngechu (2011) who hold that the recommended Cronbach’s alpha coefficients should be at least 0.7 for them to be deemed reliable.

The results are as shown in Table 4.2.

**Table 4. 2: Cronbach Alpha Reliability Tests**

| <b>Research variable</b>      | <b>Number of Items</b> | <b>Cronbach Alpha Values</b> |
|-------------------------------|------------------------|------------------------------|
| Procurement Planning          | 10                     | 0.837                        |
| Financial Resource Management | 12                     | 0.874                        |
| Strategic Partnerships        | 15                     | 0.903                        |
| Inventory Management          | 10                     | 0.891                        |
| Supply Chain Performance      | 12                     | 0.857                        |

#### **4.4 Background Information of the Respondents**

The study sought to determine the demographic characteristics of the respondents in terms of gender, level of education, employment status and length of service. This information was useful in determining the understanding of the respondents on the various issues sought by the study.

##### **4.4.1 Gender Distribution of the Respondents**

The respondents were requested to indicate whether they were male or female. The distribution of the respondents by gender is as summarized in Table 4.3.

**Table 4. 3: Gender of Respondents**

| <b>Gender</b> | <b>Frequency</b> | <b>Percentage (%)</b> |
|---------------|------------------|-----------------------|
| Male          | 25               | 44.6                  |
| Female        | 31               | 55.4                  |
| <b>Total</b>  | <b>56</b>        | <b>100</b>            |

The findings shown in Table 4.3 indicate that 44.6% of the respondents were male while 55.4% were female. The findings indicated that public universities have both male and female employees and the ratio is within the 1/3 gender rule as stipulated in the Kenyan constitution of 2010. The findings also imply that the views and opinions expressed in the study are gender-sensitive concerning procurement practices and supply chain performance of the selected public universities in Kenya.

#### 4.4.2 Level of Education

The study was carried out in selected public universities in Kenya who recruited staff depending on their needs. The respondents were thus requested to indicate their highest level of education. The results are presented in Table 4.4.

**Table 4. 4: Level of Education of Respondents**

| <b>Education Level</b> | <b>Frequency</b> | <b>Percentage (%)</b> |
|------------------------|------------------|-----------------------|
| Certificate            | 4                | 7.1                   |
| Diploma                | 13               | 23.2                  |
| Bachelors              | 26               | 46.4                  |
| Masters                | 10               | 17.9                  |
| PhD                    | 1                | 1.8                   |
| Others                 | 2                | 3.6                   |
| <b>Total</b>           | <b>56</b>        | <b>100.0</b>          |

The findings shown in Table 4.4 revealed that 7.1% had a certificate, 23.2% had diplomas, 46.4% had bachelor's degrees, 17.9% had master's degrees, 1.8% had Ph.D. while 3.6% had other professional qualifications depending on the field of specialization. There was a respondent who had CPA K in the finance department and CIPS in the procurement department in addition to the listed qualifications. The results indicated that a majority of the respondents had a diploma and above, indicating they had the necessary knowledge and skills for the work they do and thus was expected that their level of understanding of procurement practices and performance of supply chain was good.

#### 4.4.3 Employment Status

The respondents were requested to state their current status of employment. The findings are presented in Table 4.5.

**Table 4. 5: Employment Status of the Respondents**

| <b>Employment status</b> | <b>Frequency</b> | <b>Percentage (%)</b> |
|--------------------------|------------------|-----------------------|
| Permanent                | 39               | 69.6                  |
| Contract                 | 17               | 30.4                  |
| Others                   | 0                | 0                     |
| <b>Total</b>             | <b>56</b>        | <b>100.0</b>          |

The findings shown in Table 4.5 revealed that 69.6% of the respondents were employed permanently and 30.4% on a contract basis. A majority of the respondents having been employed permanently indicate that in public universities there is job security.

#### 4.4.4 Length of Service

The study sought to determine the length of time that the respondents had been serving in their current positions to establish their level of experience. The findings are presented in Table 4.6.

**Table 4. 6: Length of Service of the Respondents**

| <b>Employment status</b> | <b>Frequency</b> | <b>Percentage (%)</b> |
|--------------------------|------------------|-----------------------|
| 0-5 Years                | 19               | 33.9                  |
| 5-10 Years               | 32               | 57.2                  |
| 10-15 Years              | 4                | 7.1                   |
| Over 15 Years            | 1                | 1.8                   |
| <b>Total</b>             | <b>56</b>        | <b>100.0</b>          |

The results presented in Table 4.6 show that 33.9% had served for 0-5 years, 57.2% 5-10 years, 7.1% between 10-15 years and 1.8 % had served in their current positions for over

15 years. This shows that majority of the respondents had gained relevant experience of 5 years and above thus they are conversant with the issues sought by the study with regard to procurement and supply chain performance.

#### **4.5 Supply Chain Performance**

This section presents the findings of the dependent variable of the study which was to assess the status of supply chain performance of the selected public universities in Kenya. The study, therefore, sought to determine the extent to which the respondents agreed with the various statements on the status of supply chain performance in their university. Supply chain performance was measured using customer satisfaction, quality of delivered goods and services, on-time delivery and cost savings. The findings are presented in Table 4.7.

**Table 4. 7: Supply Chain Performance**

| <b>Statements</b>   | <b>Strongly Agree</b> | <b>Agree</b> | <b>Neutral</b> | <b>Disagree</b> | <b>Strongly Disagree</b> | <b>Mean</b> | <b>Std. Deviation</b> |
|---|-----------------------|--------------|----------------|-----------------|--------------------------|-------------|-----------------------|
| <b>Customer Satisfaction</b>  |                       |              |                |                 |                          |             |                       |
| Complaints from user departments in the university are minimal  | 23.2%                 | 50.0%        | 21.4%          | 3.6%            | 1.8%                     | 3.89        | .87                   |
| Complaints from suppliers in the university are minimal   | 21.4%                 | 42.9%        | 23.2%          | 7.1%            | 5.4%                     | 3.68        | 1.06                  |
| Service delivery in our university is adequate  | 44.6%                 | 42.9%        | 8.9%           | 3.6%            | 0.0%                     | 4.29        | .78                   |
| <b>Quality of Goods &amp; Services</b>  |                       |              |                |                 |                          |             |                       |
| The university inspects delivered goods and services against specifications to ensure receipt of quality goods and services | 62.5%                 | 33.9%        | 1.8%           | 0.0%            | 1.8%                     | 4.55        | .71                   |
| The university majorly receives quality goods and services from suppliers'/service providers                                | 46.4%                 | 33.9%        | 14.3%          | 5.4%            | 0.0%                     | 4.21        | .89                   |
| The number of rejections for goods delivered in the university is minimal   | 39.3%                 | 37.5%        | 10.7%          | 5.4%            | 7.1%                     | 3.96        | 1.17                  |
| The number of returns of delivered goods to suppliers in the university is minimal  | 35.7%                 | 39.3%        | 14.3%          | 5.4%            | 5.4%                     | 4.00        | 1.10                  |
| <b>On-time Delivery</b>   |                       |              |                |                 |                          |             |                       |
| Deliveries are made within the timelines specified in the order/contract  | 25%                   | 48.2%        | 21.4%          | 5.4%            | 0.0%                     | 3.93        | .83                   |
| Orders requiring urgent deliveries are responded to promptly by suppliers   | 42.9%                 | 39.3%        | 12.5%          | 5.4%            | 0.0%                     | 4.20        | .86                   |
| <b>Cost Savings</b>   |                       |              |                |                 |                          |             |                       |
| Prices of all procured items are usually within the market rates  | 58.9%                 | 26.8%        | 10.7%          | 1.8%            | 1.8%                     | 4.39        | .89                   |
| The university receives price discounts on delivered goods and services   | 23.2%                 | 35.7%        | 21.4%          | 17.9%           | 1.8%                     | 3.61        | 1.09                  |
| The university obtains economies of scale through bulk purchases  | 42.9%                 | 28.6%        | 12.5%          | 12.5%           | 3.6%                     | 3.95        | 1.18                  |

The results presented in Table 4.7 indicate that under the customer satisfaction indicator 23.2% of the respondents strongly agreed while 50.0% agreed with the statement that complaints from user departments are minimal (mean = 3.89, std. dev = 0.87). Complaints from suppliers are also minimal as 21.4% strongly agreed while 42.9% agreed with the statement (mean 3.68, std. dev =1.06). Moreover, 44.6% of the respondents strongly agreed while 42.9% agreed with the statement that service delivery in their university was adequate (mean = 4.29, std. dev = 0.78). From the results, it was evident that both internal and external customers were satisfied with the service delivery as evident from the combined mean of 3.95 which means that most of the respondents agreed that complaints were minimal and service delivery was adequate.

Further, under the quality of goods and services the study sought to establish whether the university inspected delivered goods and services against specifications to ensure receipt of quality goods and services were 62.5% strongly agreed while 33.9% agreed with the statement (mean = 4.55, std. dev = 0.71). Also, 46.4% of the respondents strongly agreed while 33.9% agreed with the statement that their universities majorly received quality goods and services from suppliers and service providers (mean = 4.21 std. dev = 0 .89). Further, 39.3% of the respondents strongly agreed while 37.5% agreed with the statement that the number of rejections for goods delivered in the university was minimal (mean = 3.96, std. dev = 1.17). The results also indicated that 35.7% of the respondents strongly agreed while 39.3% agreed with the statement that the number of returns of delivered goods to suppliers in the university was minimal (mean = 4.00 std. dev 1.10) From the results it was evident that quality goods and services are received evident from the combined mean of 4.18 which means that most of the respondents agreed that their universities majorly received quality goods and services and there were minimal rejections and returns.

It was also apparent under on-time delivery that 25% strongly agreed while 48.2% agreed with the statement that deliveries were made within the timelines specified in the

order or contract (mean = 3.93, std. dev = 0.83). Orders requiring urgent deliveries were responded to promptly by suppliers as 42.9% strongly agreed while 39.3% agreed with the statement. (mean = 4.20, std. dev 0 .86). From the results, it was evident that goods and services were delivered within the stated timelines as evident from the combined mean of 4.07 which means that most of the respondents agreed that there was on-time delivery of goods and services.

Likewise, the results under the cost savings indicator revealed that 58.9% of the respondents strongly agreed while 26.8% agreed with the statement that prices of all procured items were usually within the market rates (mean = 4.39 std. dev = 0 .89). Further, the results indicated that 23.2% of the respondents strongly agreed while 35.7% agreed with the statement that their universities still received price discounts on delivered goods and services (mean = 3.61, std. dev 1.09). The Universities still obtained economies of scale through bulk purchases as 42.9% strongly agreed while 28.6% agreed with the statement (mean = 3.95, std. dev = 1.18). From the results, it was evident that universities bought goods within the market rates received discounts for purchases made, and enjoyed economies of scale as evident from the combined mean of 3.98 which means that most of the respondents agreed that their universities made cost savings.

The findings from each of the indicators of supply chain performance indicate that majority of the respondents agreed with the statements, indicating that universities have considerably good, efficient and effective performing supply chains that meet the needs of their universities. The findings are in tandem with Nzovilla (2019) study on end-user involvement and supply chain performance in Kenyan Universities, A case of Chuka University, Kenya found that Chuka University had considerably good, efficient and effective performing supply chains that met the needs of the University. Moreover, Vogel (2011) adds that procurement performance is highly influenced by macro factors namely corporate supply chain and supply chain management, and it is on this basis that firms have shifted from individual organizational performance to procurement and



supply chain performance to enhance bottom-line performance within the whole chain. On the other hand, Opio (2016) reiterated that telecommunication firms are service-based organizations that strive to meet customer needs at low cost without compromising quality, and the firms are therefore forced to measure performance to enable them to identify problem areas and come up with solutions that will ensure better service delivery at an affordable cost. Karonjo (2017) was also of the school of thought that effective and efficient performing supply chains are characterized by cost reduction/Savings, responsiveness and flexibility to customer needs, reliability and efficiency of asset utilization.

#### **4.6 Procurement Planning**

This section presents the findings of procurement planning, which was one of the independent variables of the study, which was to assess the effect of procurement planning on the supply chain performance of the selected public universities in Kenya. The study sought to examine the extent to which the respondents agreed with the various statements regarding procurement planning in their university. Procurement planning was measured by looking at the planning process, participatory planning, adherence to procurement plans and timely procurements. The findings are presented in Table 4.8.

**Table 4. 8: Procurement Planning**

| <b>Procurement Planning Statements</b>   | <b>Strongly agree</b> | <b>Agree</b> | <b>Neutral</b> | <b>Disagree</b> | <b>Strongly disagree</b> | <b>Mean</b> | <b>Std. Deviation</b> |
|--|-----------------------|--------------|----------------|-----------------|--------------------------|-------------|-----------------------|
| Procurement plans are prepared in your institution   | 83.9%                 | 12.5%        | 3.6%           | 0.0%            | 0.0%                     | 4.80        | .48                   |
| Procurement planning is done at the beginning of every financial year  | 64.3%                 | 28.6%        | 7.1%           | 0.0%            | 0.0%                     | 4.57        | .63                   |
| There is departmental procurement planning   | 64.3%                 | 32.1%        | 1.8%           | 0.0%            | 1.8%                     | 4.57        | .71                   |
| Members of department are involved or consulted during departmental procurement planning                       | 44.6%                 | 33.9%        | 14.3%          | 7.1%            | 0.0%                     | 4.16        | .93                   |
| Procurement plans are forwarded to procurement department after approval by head of department                 | 62.5%                 | 32.1%        | 3.6%           | 0.0%            | 1.8%                     | 4.54        | .74                   |
| Procurement department consolidates the departmental plans into an institutional procurement plan              | 62.5%                 | 28.6%        | 7.1%           | 1.8%            | 0.0%                     | 4.52        | .71                   |
| Departments receive communication on their approved procurement plans  | 26.8%                 | 48.2%        | 14.3%          | 7.1%            | 3.6%                     | 3.88        | 1.01                  |
| Purchase needs arise from user departments in line with their procurement plans                                | 50.0%                 | 30.4%        | 10.7%          | 8.9%            | 0.0%                     | 4.21        | .97                   |
| Purchase of goods and services are made in strict adherence to the procurement plans                           | 33.9%                 | 33.9%        | 19.6%          | 7.1%            | 5.4%                     | 3.84        | 1.14                  |
| All departments purchase needs are fulfilled strictly within the timelines stipulated in the procurement plans | 26.8%                 | 35.7%        | 19.6%          | 10.7%           | 7.1%                     | 3.64        | 1.20                  |

The results in Table 4.8 revealed that 83.9% of the respondents strongly agreed while 12.5% agreed that their institutions prepared procurement plans (mean = 4.8, std. dev =

0.48). It was evident that planning was done at the beginning of every financial year as 64.3% of the respondents strongly agreed while 28.6% agreed with the statement (mean = 4.57, std. dev 0.63). The results showed that 64.3% of the respondents strongly agreed while 32.1% agreed that there was departmental procurement planning (mean = 4.57, std. dev = 0.71). Further, 44.6% of the respondents strongly agreed while 33.9% agreed that members of departments were involved or consulted during departmental procurement planning (mean = 4.16, std. dev = 0.93).

The results also indicated that 62.5% of the respondents strongly agreed while 32.1% agreed that procurement plans were forwarded to the procurement department after the approval by the head of the department (mean = 4.54, std. dev = 0.74). The results also revealed that 62.5% of the respondents strongly agreed while 28.6% agreed that after the plans were forwarded to the procurement department, the department then consolidated the received departmental plans into an institutional procurement plan (mean = 4.52, std. dev = 0.71).

Moreover, 26.8% of the respondents strongly agreed while 48.2% agreed that their departments received communication on their approved procurement plans (mean = 3.88, std. dev = 1.01). Also, 50% of the respondents strongly agreed while 30.4% agreed that that purchase needs arose from user departments in line with their procurement plans (mean = 4.21, std. dev 0.97). The results also indicated that 33.9% of the respondents strongly agreed while 33.9% agreed that the purchase of goods and services was made in strict adherence to the procurement plans (mean = 3.84, std. dev = 1.14). Further, the results also revealed that 26.8% of the respondents strongly agreed while 35.7% agreed that all user departments' purchase needs were fulfilled strictly within the timelines stipulated in the procurement plans (mean = 3.64, std. dev = 1.20).

The findings indicate that procurement planning is carried out in the selected public universities at the beginning of every financial year as evidenced by an average mean of 4.65 which indicates that most of the respondents strongly agreed that procurement planning is carried out in their universities. Moreover, planning was participatory from an average mean of 4.28 indicating that most of the respondents agreed that they were

involved in the procurement planning process. The selected Universities adhered to the prepared procurement plans as indicated by an average mean of 4.03 which indicates that the respondents agreed that the prepared procurement plans are adhered to.

The findings agree with Kasomi (2009) that proactive procurement planning is necessary for better supply chain performance. Moreover, Willy & Njeru (2014) reiterated that preparation of annual procurement plans, frequency of formulation of procurement plans and the evaluation of the same contributes to the corporation's procurement performance and also ensures timely allocation of resources, therefore, impacting positively on procurement performance and therefore good plans result to effectiveness and efficiency in attaining projected results. Onyango (2012) on the other hand contends that lack of good planning and establishment of departmental needs affect procurement efficiency and service delivery.

#### **4.6.1 Correlation between Procurement Planning and Supply Chain Performance**

Correlation analysis was conducted using Pearson Correlation to determine the relationship and strength of the relationship between procurement planning and supply chain performance of the selected public universities. The results are presented in Table 4.9.

**Table 4. 9: Correlation between Procurement Planning and Supply Chain Performance**

|                             |                     | Supply Chain Performance |
|-----------------------------|---------------------|--------------------------|
| <b>Procurement Planning</b> | Pearson Correlation | .614**                   |
|                             | Sig.2-tailed        | .000                     |
|                             | N                   | 56                       |

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

The findings in Table 4.9 illustrates that procurement planning has a strong and positive relationship with supply chain performance from the Pearson correlation coefficient (r) value of 0.614\*\* (61.4%). This implies that supply chain performance can improve by 61.4% if procurement planning is done properly and the procurement plans are adhered to. Testing the significance of the association at 0.01 (1%) level with a two-tailed test indicates that procurement planning had a positive statistically significant association with supply chain performance.

The study findings are consistent with a study by Patrick & Wallace (2016) which established that procurement planning positively impacted procurement service delivery to a large extent. A study by Ocharo (2013) revealed that procurement plans influence procurement performance in the sense that they provide focused and efficient utilization of available resources, help in budgeting and planning and therefore with adequate provision of funds due to procurement plans, performance is assured. Basheka (2009) further validates the results where the study findings revealed that procurement planning is one of the primary functions of procurement with the potential to contribute to the success of operations and improves services.

#### **4.7 Financial Resource Management**

This section presents the findings of financial resource management, which was one of the independent variables of the study, which was to assess the effect of financial resource management on the supply chain performance of the selected public universities in Kenya. The study sought to determine the extent to which the respondents agreed with the various statements regarding financial resource management in their university. Financial resource management was measured by looking at the budgeting process, linkage with procurement plans, implementation of budgets and contract awards. The findings are presented in Table 4.10.

**Table 4. 10: Financial Resource Management**

| <b>Financial Resource Management Statements</b>  | <b>Strongly agree</b> | <b>Agree</b> | <b>Neutral</b> | <b>Disagree</b> | <b>Strongly disagree</b> | <b>Mean</b> | <b>Std. Deviation</b> |
|--|-----------------------|--------------|----------------|-----------------|--------------------------|-------------|-----------------------|
| Budgeting is done at the beginning of every financial year   | 76.8%                 | 23.2%        | 0.0%           | 0.0%            | 0.0%                     | 4.77        | .43                   |
| Budgeting is done at departmental level  | 50.0%                 | 33.9%        | 8.9%           | 1.8%            | 5.4%                     | 4.21        | 1.06                  |
| Budgets are prepared in line with departmental procurement plans   | 41.1%                 | 41.1%        | 12.5%          | 1.8%            | 3.6%                     | 4.14        | .96                   |
| Departmental budgets are forwarded to finance department after approval by head of department                        | 60.7%                 | 26.8%        | 7.1%           | 3.6%            | 1.8%                     | 4.41        | .91                   |
| Departmental budgets are usually aligned to the main university budget   | 57.1                  | 26.8%        | 12.5%          | 1.8%            | 1.8%                     | 4.36        | .90                   |
| After budget approval funds are allocated to the departments   | 44.6                  | 32.1         | 12.5%          | 7.1%            | 3.6%                     | 4.07        | 1.10                  |
| Departments receive communication on their approved budgets  | 30.4                  | 37.5         | 23.2%          | 7.1%            | 1.8%                     | 3.88        | .99                   |
| Procurement of items is done as per the approved budgets   | 48.2%                 | 28.6%        | 14.3%          | 5.4%            | 3.6%                     | 4.13        | 1.08                  |
| Before any contract award is done or order given to a supplier funds are confirmed to be available as per the budget | 62.5%                 | 19.6%        | 10.7%          | 5.4%            | 1.8%                     | 4.36        | .99                   |
| Departments receive communication on vote head balances regularly  | 28.6%                 | 39.3%        | 12.5%          | 16.1%           | 3.6%                     | 3.73        | 1.15                  |
| There are departmental budget reviews to cater for any changes in the prevailing economic environment                | 23.2%                 | 39.3%        | 28.6%          | 5.4%            | 3.6%                     | 3.73        | .99                   |
| Supplementary budgets are done to cater for vote heads which get exhausted before the end of the financial year      | 32.1%                 | 42.9%        | 14.3%          | 8.9%            | 1.8%                     | 3.95        | .99                   |

The results are presented in Table 4.10 indicated that 76.8% of the respondents strongly agreed to the statement that budgeting was done at the beginning of every financial year while 23.2% agreed (mean = 4.77, std. dev = 0.43). The results further reveal that 50% of the respondents strongly agreed while 33.9% agreed that budgeting was done at the departmental level (mean = 4.21, std. dev = 1.06). The findings also indicated that 41.1% strongly agreed with the statement that budgets were prepared in line with the departmental procurement plans while 41.1% agreed with the statement (mean = 4.14, std. dev = 0.96). The results also revealed that 60.7% strongly agreed while 26.8% agreed with the statement that departmental budgets were forwarded to the finance department after approval by the head of the department (mean = 4.41, std. dev = 0.91) The results showed that 57.1% of the respondents strongly agreed with the statement that departmental budgets were usually aligned to the main university's budget while 26.8% agreed with the statement (mean = 4.36, std. dev = 0.90). Also, 44.6% of the respondents strongly agreed while 32.1% agreed with the statement that after budget approval funds were allocated to the departments (mean = 4.07, std. dev = 1.10)

The results further revealed that 30.4% of the respondents strongly agreed while 37.5% agreed with the statement that departments received communication on their approved budgets (mean = 3.88, std. dev = 0.99). Moreover, the study revealed that 48.2% strongly agreed while 28.6% agreed with the statement that procurement of items was done as per the approved budgets (mean = 4.13, std. dev = 1.08). The results further revealed that 62.5% of the respondents strongly agreed with the statement that before any contract award was done or order was given to a supplier, funds are confirmed to be available as per the budget while 19.6% agreed with the statement (mean = 4.36, std. dev = 0.99).

The results further indicated that 28.6% of the respondents strongly agreed while 39.3% agreed with the statement that departments received communication on vote head balances regularly (mean = 3.73, std. dev = 1.15). Further, 23.2% of the respondents strongly agreed with the statement that there were departmental budget reviews to cater for any changes in the prevailing economic environment while 39.3% agreed with the



statement (mean = 3.73, std. dev = 0.99). The results also indicated that 32.1% strongly agreed while 42.9% agreed with the statement that supplementary budgets were done to cater to vote heads which get exhausted before the end of the financial year (mean = 3.95, std. dev = 0.99).

Budgets are prepared at the beginning of every financial year by each department and they are prepared in line with the departmental procurement plans and are aligned to the main University budget as indicated by the average mean of 4.27. The results also indicate there was a linkage between the prepared procurement plans and the prepared budget as evidenced by the average mean of 4.13. The findings concur with a study by Ocharo (2013) which alluded that financial resource confirmation and allocation help make procurement effective when carried out appropriately. Onyango (2012) is also of the school of thought that funding for procurement is unlikely to be sufficient to meet all requirements, and scarce financial resources must be well managed and allocated through planning and proper budgeting to meet the priority public services before less essential needs; and publication of realistic annual procurement plans allows the private sector to respond more effectively to the requirements and specifications of government, through investment in staff and equipment, manufacture and importing of goods, and financial planning.

#### **4.7.1 Correlation between Financial Resource Management and Supply Chain Performance**

Correlation analysis was conducted using Pearson Correlation to determine the relationship and strength of the relationship between financial resource management and supply chain performance of the selected public universities. According to the Pearson correlation coefficient scale, a coefficient value in the interval 0.0-0.5 is a weak correlation, a range of 0.5-1.0 is a strong correlation accordingly a correlation value of 1 will indicate the presence of a perfect relationship between the dependent and independent variable the strength of the association varies from (- or +) indicating a positive or negative association from the intervals above. The findings are presented in Table 4.11.

**Table 4. 11: Correlation between Financial Resource Management and Supply Chain Performance**

|                                      |                     | Supply Performance | Chain |
|--------------------------------------|---------------------|--------------------|-------|
| <b>Financial Resource Management</b> | Pearson Correlation | .435**             |       |
|                                      | Sig.2-tailed        | .000               |       |
|                                      | N                   | 56                 |       |

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

The findings in Table 4.11 indicate that financial resource management has a weak and positive relationship with supply chain performance from the Pearson correlation coefficient (r) value of 0.435\*\* (43.5%). This implies that changes in financial resource management cause a weak change in supply chain performance. This may be attributed to uncontrollable factors in the Macro environment such as the prevailing prices in the market. Testing the significance of the association at 0.01 (1%) level with a two-tailed test indicates that financial resource management had a positive statistically significant association with supply chain performance.

The results echo the findings of a study by Namusonge (2013) which revealed the challenges associated with financial resource management where the financial resources did not satisfy the institutional needs with regards to procurement, whereby the prices at which the items were bought during a financial year exceeded the planned and budgeted amounts leading to insufficient funds thus impacting planning and the entire supply chain performance. Further, a study by Denis & Kilonzo (2014) revealed that resource allocation in many public organizations in developing countries is always inadequate due to budgetary deficits. Moreover, a study by Davis (2002) contends that resource allocation is an important aspect in determining how effective the whole process will be and therefore this calls for public entities to try and balance resource allocation and even allocate more funds to procurement departments because procurement is the base of all other departments and its success percolates down to the whole organization and it is

imperative that procurement resource allocation planning is done in a manner that takes care of the pursued strategic fit in the public entities.

#### **4.8 Strategic Partnerships**

This section presents the findings of strategic partnerships, which was one of the independent variables of the study, which was to assess the effect of strategic partnerships on the supply chain performance of the selected public universities in Kenya. The study sought to find out the extent to which the respondents agreed with the various statements regarding strategic partnerships in their university. A strategic partnership was measured using strategic supplier partnerships and customer/user relationship. The findings are presented in Table 4.12.

**Table 4. 12: Strategic Partnerships**

| <b>Strategic Partnerships Statements</b>   | <b>Strongly agree</b> | <b>Agree</b> | <b>Neutral</b> | <b>Disagree</b> | <b>Strongly disagree</b> | <b>Mean</b> | <b>Std. Deviation</b> |
|--|-----------------------|--------------|----------------|-----------------|--------------------------|-------------|-----------------------|
| There is regular and timely sharing of critical supply chain information between the university and suppliers                            | 35.7%                 | 44.6%        | 14.3%          | 3.6%            | 1.8%                     | 4.09        | .90                   |
| The university has created platforms to enable suppliers to give feedback and make inquiries   | 41.1%                 | 39.3%        | 8.9%           | 8.9%            | 1.8%                     | 4.09        | 1.01                  |
| Supplier enquiries are responded to promptly   | 33.9%                 | 44.6%        | 10.7%          | 8.9%            | 1.8%                     | 4.00        | .99                   |
| Suppliers deliver goods within the timelines stipulated in the order/contract  | 32.1%                 | 37.5%        | 21.4%          | 7.1%            | 1.8%                     | 3.91        | .99                   |
| Suppliers deliver goods that meet the specifications detailed in the order/contract  | 44.6%                 | 37.5%        | 12.5%          | 5.4%            | 0.0%                     | 4.21        | .87                   |
| Suppliers receive payments within 30days from date of delivery   | 16.1%                 | 48.2%        | 14.3%          | 14.3%           | 7.1%                     | 3.52        | 1.14                  |
| Supplier performance appraisal is periodically undertaken  | 23.2%                 | 48.2%        | 19.6%          | 5.4%            | 3.6%                     | 3.82        | .97                   |
| Suppliers are given feedback of the results of the supplier performance appraisal  | 16.1%                 | 37.5%        | 21.4%          | 16.1%           | 8.9%                     | 3.36        | 1.20                  |
| Training is done by the university to suppliers lagging in performance after supplier performance appraisal is done                      | 19.6%                 | 25%          | 21.4%          | 17.9%           | 16.1%                    | 3.14        | 1.37                  |
| Procurement guides user departments on how to draw good and clear specifications   | 41.1%                 | 37.5%        | 7.1%           | 14.3%           | 0.0%                     | 4.05        | 1.03                  |
| Procurement department acts promptly on received user purchase requests  | 46.4%                 | 39.3%        | 10.7%          | 1.8%            | 1.8%                     | 4.27        | .86                   |
| Procurement department always seeks clarification from user departments on specifications which are not clear in their purchase requests | 53.6%                 | 30.4%        | 14.3%          | 1.8%            | 0.00%                    | 4.36        | .80                   |
| Users are free to consult procurement department regarding their purchase needs  | 69.6%                 | 17.9%        | 7.1%           | 3.6%            | 1.8%                     | 4.50        | .91                   |
| Once deliveries are made by suppliers' user departments are notified immediately   | 44.6%                 | 26.8%        | 14.3%          | 12.5%           | 1.8%                     | 4.00        | 1.13                  |
| The procurement department organizes training for user departments to sensitize them on procurement issues and processes.                | 46.4%                 | 28.6%        | 10.7%          | 8.9%            | 5.4%                     | 4.02        | 1.20                  |

The results are presented in Table 4.12 revealed that 35.7% of the respondents strongly agreed with the statement that there was regular and timely sharing of critical supply chain information between the university and suppliers while 44.6% agreed with the statement (mean = 4.09, std. dev = 0.90). Further, 41.1% of the respondents strongly agreed with the statement that the university had created platforms to enable suppliers to give feedback and inquiries while 39.3% agreed with the statement (mean = 4.09, std. dev = 1.01).

On the statement on whether supplier inquiries are responded to promptly 33.9% of the respondents strongly agreed while 44.6% agreed with the statement (mean = 4.00, std. dev = 0.99). Also, 32.1% of the respondents strongly agreed while 37.5% agreed with the statement that suppliers delivered goods within the timelines stipulated in the order or contract (mean = 3.91, std. dev = 0.99). The results further revealed that 44.6% of the respondents strongly agreed while 37.5% agreed with the statement that suppliers delivered goods that met the specifications detailed in the order or contract (mean = 4.21, std. dev = 0.87).

The study also revealed that 16.1% of the respondents strongly agreed while 48.2% agreed with the statement that suppliers received payments within 30 days from the date of delivery (mean = 3.52, std. dev = 1.14). On whether supplier performance appraisal was periodically undertaken, 23.2% strongly agreed while 48.2% agreed with the statement (mean = 3.82, std. dev = 0.97). Further, 16.1% of the respondents strongly agreed while 37.5% agreed with the statement that suppliers were given feedback on the results of the supplier performance appraisal (mean = 3.36, std. dev = 1.20). The results further indicated that 19.6% of the respondents strongly agreed while 25% agreed with the statement that training was done by the university to suppliers lagging in performance after supplier appraisal was done (mean = 3.14, std. dev = 1.37). On whether procurement guided user departments on how to draw good and clear specifications 41.1% of the respondents strongly agreed while 37.5% agreed with the statement (mean = 4.05, std. dev = 1.03).

Further, 46.4% of the respondents strongly agreed while 39.3% agreed with the statement that the procurement department acts promptly on received user purchase requests (mean = 4.27, std. dev = 0.86). The study findings also revealed that 53.6% of the respondents strongly agreed while 30.4% agreed with the statement that the procurement department always sought clarification from the user department on specifications that were not clear in their purchase request (mean = 4.36, std. dev = 0.80). On whether users were free to consult the procurement department regarding their purchase needs 69.6% of the respondents strongly agreed while 17.9% agreed with the statement (mean = 4.50, std. dev = 0.91). Also, 44.6% of the respondents strongly agreed while 26.8% agreed with the statement that once deliveries are made by suppliers' user departments are notified immediately (mean = 4.00, std. dev = 1.13). Finally, 46.4% of the respondents strongly agreed while 28.6% agreed with the statement that the procurement department organizes training for user departments to sensitize them on procurement issues and processes (mean = 4.02, std. dev = 1.20).

The selected Universities have fostered good and strategic partnerships with both their suppliers and internal user departments as most of the respondents agreed that most of their needs are met as evidenced by an average mean of 4.20. The findings are in agreement with Kiprop (2015) that proper strategic partnerships affected the performance of banks. Moreover, the findings are consistent with a study by Chepkwony & Chirchir (2017) which allude that a strategic partner relationship is a critical issue for any business, especially in supply chain activities. The findings further agree with Amit & Zott (2001) that the importance of close relationships among trading partners is a key source of advantage to both buyer and seller. The findings are also consistent with Lee et al., (1997) that inter-organizational relationships would arguably lead to enhanced supply chain performance and greater potential benefits for all parties in the supply chain.

#### 4.8.1 Correlation between Strategic Partnerships and Supply Chain Performance

Correlation analysis was conducted using Pearson Correlation to ascertain the relationship and strength of the relationship between strategic partnerships and supply chain performance of the selected public universities. The results are presented in Table 4.13.

**Table 4. 13: Correlation between Strategic Partnerships and Supply Chain Performance**

|                               |                     | Supply<br>Performance | Chain |
|-------------------------------|---------------------|-----------------------|-------|
| <b>Strategic Partnerships</b> | Pearson Correlation | .846**                |       |
|                               | Sig.2-tailed        | .000                  |       |
|                               | N                   | 56                    |       |

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

The findings in Table 4.13 indicate that strategic partnerships have a strong and positive relationship with supply chain performance from the Pearson correlation coefficient ( $r$ ) value of 0.846\*\* (84.6%). This implies that supply chain performance can only improve if strategic win-win partnerships with both the external suppliers and internal customers are fostered. Testing the significance of the association at 0.01 (1%) level with a two-tailed test indicates that strategic partnerships had a positive statistically significant association with supply chain performance.

The results are consistent with a study by Kiprop (2015) which alludes that embracing strategic partnerships is the next key to business success and improved performance and productivity. The findings further agree with a study by Chepkwony & Chirchir (2017)

which found a positive correlation between strategic partnership practice and supply chain performance in tea firms and concluded that the more the tea firms embraced partnership practice the higher the supply chain performance. The findings further agree with Panayides & So (2005), that relationship orientation in logistic service provider-client relationships has a positive influence on supply chain effectiveness and indirect positive influence via supply chain effectiveness on supply chain performance. Therefore, this implied that strategic partnership practice is pivotal if supply chain performance is to be enhanced.

#### **4.9 Inventory Management**

This section presents the findings of inventory management, which was one of the independent variables of the study, which was to assess the effect of inventory management on the supply chain performance of the selected public universities in Kenya. The study sought to determine the extent to which the respondents agreed with the various statements regarding inventory management in their university. Inventory management was measured using inventory records accuracy, inventory investment and inventory turnover. The findings are presented in Table 4.14.



**Table 4. 14: Inventory Management**

| <b>Inventory Management Statements</b>  | <b>Strongly agree</b> | <b>Agree</b> | <b>Neutral</b> | <b>Disagree</b> | <b>Strongly disagree</b> | <b>Mean</b> | <b>Std. Deviation</b> |
|---|-----------------------|--------------|----------------|-----------------|--------------------------|-------------|-----------------------|
| Up to date records of inventory are always maintained   | 50.0%                 | 37.5%        | 8.9%           | 3.6%            | 0.0%                     | 4.34        | .79                   |
| Complete accounts of inventory received or issued is always maintained                                  | 42.9%                 | 44.6%        | 8.9%           | 3.6%            | 0.0%                     | 4.27        | .77                   |
| There is control on who and how to handle inventory records   | 57.1%                 | 33.9%        | 8.9%           | 0.0%            | 0.0%                     | 4.48        | .66                   |
| There are laid down procedures on how to update inventory records                                       | 44.6%                 | 37.5%        | 17.9%          | 0.0%            | 0.0%                     | 4.27        | .75                   |
| Regular stock taking is done to ensure inventory records match with the current inventory held in stock | 58.9%                 | 35.7%        | 5.4%           | 0.0%            | 0.0%                     | 4.54        | .60                   |
| Re-ordering is done based on inventory balances   | 30.4%                 | 33.9%        | 16.1%          | 8.9%            | 10.7%                    | 3.64        | 1.29                  |
| Only common user items critical to operations are held in stock   | 44.6%                 | 37.5%        | 10.7%          | 3.6%            | 3.6%                     | 4.16        | 1.01                  |
| High value items are only held in stock on order which must be approved by the management               | 39.3%                 | 39.3%        | 19.6%          | 1.8%            | 0.0%                     | 4.16        | .80                   |
| Inventory turnover contributes greatly to inventory investment  | 30.4%                 | 41.1%        | 23.2%          | 5.4%            | 0.0%                     | 3.96        | .87                   |
| Only fast-moving inventory is held in stock   | 39.3%                 | 32.1%        | 17.9%          | 8.9%            | 1.8%                     | 3.98        | 1.05                  |

The results presented in Table 4.14 indicated that 50% of the respondents strongly agreed while 37.5% agreed with the statement that up to date records of inventory was always maintained (mean = 4.34, std. dev = 0.79). On whether complete accounts of inventory received and issued were always maintained 42.9% of the respondents agreed while 44.6% agreed with the statement (mean = 4.27, std. dev 0.77). The results also indicated that 57.1% of the respondents strongly agreed with the statement that there was control on who and how to handle inventory records while 33.9% agreed with the statement (mean = 4.48, std. dev 0.66). Further, 44.6% of the respondents strongly agreed while 37.5% agreed with the statement that there were laid down procedures on how to update inventory records (mean = 4.27, std. dev 0.75). The study findings also revealed that 58.9% of the respondents strongly agreed while 35.7% agreed with the statement that regular stock-taking was done to ensure inventory records matched with the current inventory held in stock (mean = 4.54, std. dev = 0.60). On whether re-ordering was done based on inventory balances 30.4% strongly agreed with the statement while 33.9% agreed (mean = 3.64, std. dev = 1.29). Also, 44.6% of the respondents strongly agreed while 37.5% agreed with the statement that only common user items and items critical to the operations of the institution were held in stock (mean = 4.16, std. dev = 1.01). The findings also indicated that 39.3% of the respondents strongly agreed while 39.3% agreed with the statement that high-value items were only held in stock on order which must be approved by the management (mean = 4.16, std. dev = 0.80). Further, 30.4% of the respondents strongly agreed while 41.1% agreed with the statement that inventory turnover contributed greatly to inventory investment (mean = 3.96, std. dev = 0.87). Finally, on whether only fast-moving inventory was held in stock 39.3% of the respondents strongly agreed while 32.1% agreed with the statement (mean = 3.98, std. dev = 1.05).

The selected Universities practiced prudent inventory management practices as they ensured that complete accounts of inventory received/issued is always maintained, re-ordering is done based on inventory balances to achieve an optimum level of inventory investment and only fast-moving inventory was held in stock, as evidenced by an

average mean of 4.38 indicating that most of the respondents agreed with the statements on inventory management. The findings agree with Meng (2006) that Supply chain performance is an outcome of appropriate inventory management. The findings are also in tandem with those of Wagura (2015) that proper inventory management systems and practices significantly influence supply chain performance in that it impacts quality service delivery, cost and flexibility. Further, a study by Kamakia (2015) posits that inventory management techniques encompass a set of approaches and practices that effectively integrate with suppliers, manufactures, distributors, and customers to improve the long-term business performance and their supply chain, and these inventory management techniques are related to supply chain integration, supply chain flexibility and customer responsiveness.

#### **4.9.1 Correlation between Inventory Management and Supply Chain Performance**

Correlation analysis was conducted using Pearson Correlation to ascertain the relationship and strength of the relationship between inventory management and supply chain performance of the selected public universities. The results are presented in Table 4.15.

**Table 4. 15: Correlation between Inventory Management and Supply Chain Performance**

|                             |                     | <b>Supply</b>      | <b>Chain</b> |
|-----------------------------|---------------------|--------------------|--------------|
|                             |                     | <b>Performance</b> |              |
| <b>Inventory Management</b> | Pearson Correlation | .783**             |              |
|                             | Sig.2-tailed        | .000               |              |
|                             | N                   | 56                 |              |

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

The findings in Table 4.15 indicate that inventory management had a strong and positive relationship with supply chain performance from the Pearson correlation coefficient( $r$ ) value of 0.783\*\* (78.3%). This implies that supply chain performance can only improve if there is proper management of inventory. Testing the significance of the association at 0.01 (1%) level with a two-tailed test indicates that inventory management had a positive statistically significant association with supply chain performance. This concurs with the findings of Augustine (2013) that gave a positive correlation between good inventory management practices and organizational cost reduction which in turn impacts supply chain performance. The findings also agree with those of Wagura (2015) which revealed a significant relationship between inventory management and supply chain performance. Meng (2006) arguments also support this finding that with effective inventory management, procurement goals would be achieved and the whole supply chain optimized.

#### **4.10 Multiple Regression Analysis**

The study used multiple regression analysis to determine the significance of the relationship between the dependent variable (supply chain performance) and all the independent variables (procurement planning, financial resource management, strategic partnerships and inventory management) pooled together. Factor analysis was used to construct variables to use in the regression data. Specifically, the principle component analysis was used to obtain the regression constructs. Kaiser Meyer Olkin (KMO) sample adequacy and Bartlett's sphericity tests were used to identifying whether the output from the principal component analysis was suitable for regression, all tests are presented in Appendix VI and they all indicate the variables generated were suitable to conduct the regression analysis. The variables generated were procurement planning, financial resource management, strategic partnerships and inventory management. The regression model is summarized in Table 4.16 and gives the coefficient of determination showing the degree to which the independent variables influence the dependent variable.

Analytical model specification;

$$SCP_i = \beta_0 + \beta_1 PP_i + \beta_2 FRM_i + \beta_3 SP_i + \beta_4 IM_i + \varepsilon$$

Where  $SCP_i$  denotes supply chain performance,  $\beta_0$  is the intercept constant, PP denotes procurement planning, FRM denotes financial resource management, SP denotes strategic partnerships and IM denotes inventory management.  $\beta_1 - \beta_4$  is the corresponding coefficients of independent variables and  $\varepsilon$  is the error term. The results of the coefficient of determination ( $R^2$ ) are presented in Table 4.16.

**Table 4. 16: Regression Model Summary**

| Model | R                 | R Square | Adjusted R Square | Std. Error of the Estimate | Durbin-Watson |
|-------|-------------------|----------|-------------------|----------------------------|---------------|
| 1     | .884 <sup>a</sup> | .781     | .764              | .48625298                  | 2.215         |

- a) Predictors: (Constant), Procurement Planning, Financial Resource Management, Strategic Partnership, Inventory Management
- b) Dependent Variable: Supply Chain Performance

The results presented in Table 4.16 show the coefficient of independent variables against the dependent variable. The results of the regression analysis revealed there was a significant positive relationship between the dependent variable and the independent variable. R-Square is a commonly used statistic to evaluate model fit.  $R^2$  is 1 minus the ratio of residual variability. The coefficient of determination also called the  $R^2$  was 0.781. An  $R^2$  value of 0.781 indicates that 78.1 % of the corresponding variation in supply chain performance of the selected public universities can be predicted or explained by procurement planning, financial resource management, strategic partnerships, inventory management, which indicated that the model fitted the study data. The remaining 21.9% of the variation was explained by other factors other than the study variables or variables outside the model. Therefore, further research can be carried out on 21.9%

**Table 4. 17: Analysis of Variance (ANOVA)**

Analysis of variance given in Table 4.17 determines the reliability of the model developed in experiencing the relationship between the study variables.

| <b>Model</b> | <b>Sum of Squares</b> | <b>df</b> | <b>Mean Square</b> | <b>F</b> | <b>Sig. F</b>     |
|--------------|-----------------------|-----------|--------------------|----------|-------------------|
| Regression   | 42.941                | 4         | 10.735             | 45.404   | .000 <sup>b</sup> |
| Residual     | 12.059                | 51        | .236               |          |                   |
| Total        | 55.000                | 55        |                    |          |                   |

a. Dependent Variable: Supply Chain Performance

b. Predictors: (Constant), Procurement Planning, Financial resource management, Strategic partnership, Inventory management

The findings on the analysis of variance (ANOVA) presented in Table 4.17 indicate that the F- statistic value of 45.404 and P- value of 0.000. These findings imply that the regression model was significant in predicting the relationship between procurement planning, financial resource management, strategic partnership and inventory management and supply chain performance of the selected public universities. The study, therefore, establishes that; procurement planning, financial resource management, strategic partnership and inventory management are statistically acceptable as useful in predicting supply chain performance.

**Table 4.18 Regression Coefficients**

The results in Table 4.18 provide the coefficients of the variables used in the study which were procurement planning, financial resource management, strategic partnerships and inventory management.

| Model                         | Unstandardized |            | Standardized | t      | Sig.  |
|-------------------------------|----------------|------------|--------------|--------|-------|
|                               | Coefficients   |            | Coefficients |        |       |
|                               | B              | Std. Error | Beta         |        |       |
| (Constant)                    | -7.419E-18     | .065       |              | .000   | 1.000 |
| Procurement Planning          | .099           | .090       | .099         | 1.111  | .272  |
| Financial Resource Management | -.134          | .083       | -.134        | -1.608 | .114  |
| Strategic Partnership         | .590           | .107       | .590         | 5.535  | .000  |
| Inventory management          | .356           | .104       | .356         | 3.414  | .001  |

a. Dependent Variable: Supply Chain Performance

Table 4.18 gives the regression coefficients which answered the regression model proposed as shown in equation 4.1

$$SCP_i = \beta_0 + \beta_1 PP_i + \beta_2 FRM_i + \beta_3 SP_i + \beta_4 IM_i + \epsilon_i \dots \dots \dots \text{Equation 4.1}$$

Substituting the coefficient in the model,

$$Y = -7.419E-18 + .099 PP_i - .134 FRM_i + .590 SP_i + .356 IM_i \dots \dots \dots \text{Equation 4.2}$$

According to this model and in line with the results presented in Table 4.18, the constant variable was statistically insignificant. This implies that supply chain performance cannot stand alone without the other factors in the model.

The coefficient of procurement planning was insignificant at a 5% level of significance as given by the P-value of  $0.272 > 0.05$ . This implies that procurement planning does not cause changes in supply chain performance when all other factors are held constant. These findings differ with those of Angela (2016) and Karanja and Kiarie (2015) who found a positive and significant association between procurement planning and performance. However, the findings are in tandem with those of Odero (2017) also found a positive and insignificant relationship between procurement planning and procurement performance of public sugar manufacturing firms in Western Kenya.

The coefficient of financial resource management was insignificant at a 5% level of significance as given by the P-value of  $0.114 > 0.05$ . This implies that financial resource management does not cause changes in supply chain performance when all other factors are held constant. The findings differ from those of Ocharo (2013) who found a significant relationship between financial resource allocation and procurement performance of the Ministry of Energy. Further, a study by Denis & Kilonzo (2014) revealed that there was a strong relationship between financial resource allocation and procurement performance. Moreover, a study by Halachmi (2005) on performance-based procurement in developing countries found out that when financial resources are few, the performance of procurement is poor as performance levels are compromised, and nevertheless, at all times financial resources are scarce and those allocated to procurement are always not enough.

The coefficient of strategic partnerships was positive and statistically significant at a 5% level of significance as given by the P-value of  $0.000 < 0.05$ . This implies that holding all other independent variables (procurement planning, financial resource management, inventory management) constant, a unit increase in strategic partnerships will cause a positive change in supply chain performance. The findings are similar to those of Kibet



(2014) which found a positive significant association between strategic partnerships and supply chain performance of supermarkets in Nairobi, Kenya. The study further revealed that strategic partnerships had impacted the supply chain performance of the supermarkets by encouraging mutual planning and problem-solving efforts which in turn had made the supermarkets more competitive, flexible, and efficient and they have been able to exchange information on demand and proper management of inventory levels.

The coefficient of inventory management was positive and statistically significant at a 5% level of significance as given by the P-value of  $0.001 > 0.05$ . This implies that holding all other independent variables (procurement planning, financial resource management, strategic partnerships) constant, a unit increase in inventory management will cause a positive change in supply chain performance. The findings are in tandem with those of Waithaka (2015) which found a positive significant association between inventory management systems and supply chain performance in public hospitals in Nairobi, Kenya, with a P-value of 0.003

Based on the standardized coefficients, strategic partnerships had a higher coefficient of 0.590 compared to inventory management which had 0.356. This implies that the changes in strategic partnerships had a higher impact on the changes in supply chain performance.

## CHAPTER FIVE

### SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

#### 5.1 Introduction

This chapter presents a summary of the key findings as discussed in chapter four as well as the conclusions, recommendations based on the findings and suggestions for further research.

#### 5.2 Summary of findings

The first objective of the study was to investigate the effect of procurement planning on supply chain performance in selected public universities in Kenya. The key indicators of procurement planning were planning process, participatory planning, adherence to procurement plan and timely procurements. The study revealed that the majority of the respondents agreed that procurement planning influenced supply chain performance. The findings revealed a strong and positive relationship between procurement planning and supply chain performance with a correlation coefficient value of 61.4%, a regression coefficient value of 0.099 and a P-value of 0. 272. This revealed an insignificant relationship between procurement planning and supply chain performance.

The second objective of the study was to evaluate the effect of financial resource management on supply chain performance in selected public universities in Kenya. The key indicators of financial resource management were budgeting process, linkage with procurement plan, implementation of budgets and contract awards. The study revealed that the majority of the respondents agreed that financial resource management influenced supply chain performance. The findings revealed a weak and positive relationship between financial resource management and supply chain performance with a correlation coefficient value of 43.5%, a regression coefficient value of – 0.134 and a P-value of 0. 114. This revealed an insignificant relationship between financial resource management and supply chain performance.

The third objective of the study was to determine the effect of strategic partnerships on supply chain performance in selected public universities in Kenya. The key indicators of strategic partnerships were strategic supplier partnership and customer/user relationship. The study revealed that the majority of the respondents agreed that strategic partnerships influenced supply chain performance. The findings revealed a strong and positive relationship between strategic partnerships and supply chain performance with a correlation coefficient value of 84.6%, a regression coefficient value of 0.590 and a P-value of 0.000. This revealed a positive statistically significant relationship between strategic partnerships and supply chain performance.

The fourth objective of the study was to assess the effect of inventory management on supply chain performance in selected public universities in Kenya. The key indicators of inventory management were inventory records accuracy, inventory investment and inventory turnover. The study revealed that the majority of the respondents agreed that inventory management influenced supply chain performance. The findings revealed a strong and positive relationship between inventory management and supply chain performance with a correlation coefficient value of 78.3%, a regression coefficient value of 0.356 and a P-value of 0.001. This revealed a positive statistically significant relationship between inventory management and supply chain performance.

The general objective of the study was to establish the effect of procurement practices on supply chain performance in selected public universities in Kenya. The regression analysis indicated a coefficient of determination  $R^2$  value of 0.781. This implies that 78.1% of the corresponding variation in supply chain performance of the selected public universities could be predicted or explained by procurement planning, financial resource management, strategic partnerships and inventory management which indicated that the model fitted the study data. The remaining 21.9% of the variation could be attributed to other factors other than the study variables or factors outside the model.

The inferential statistics revealed that the strongest correlation was between strategic partnerships and supply chain performance. Among the four variables, strategic partnerships was ranked highest with a coefficient value of 0.590, followed by inventory

management with a coefficient value of 0.356, then procurement planning with a coefficient value of 0.099 and lastly financial resource management with a coefficient value of -0.134.

### **5.3 Conclusion of Study**

In regards to procurement planning practice, the regression coefficient was insignificant. This implies that procurement planning does not cause changes in supply chain performance when all other factors were held constant. This can be attributed to the lack of some user departments not taking the preparation of the procurement plans seriously thus prepare plans that are not comprehensive enough to meet their purchase needs for the entire financial year. More so, this could also be due to changes in user purchase needs which may arise due to unforeseen circumstances, thus limiting adherence to procurement plans and timely procurement of goods and services.

The coefficient of financial resource management indicated an insignificant relationship. This implies that financial resource management does not cause changes in supply chain performance when all other factors were held constant. This can be attributed to the changes in user purchase needs that arise due to unforeseen circumstances, thus limiting adherence to procurement plans which in turn affects the overall University budget. This can also be attributed to uncontrollable factors in the Macro environment such as the prevailing prices in the market

The coefficient of strategic partnerships was positive and statistically significant. This implies that holding all other independent variables (procurement planning, financial resource management, inventory management) constant, a unit increase in strategic partnerships will cause a positive change in supply chain performance. This can be attributed to the vital role played by each of the supply chain players; the external supplier, the procurement department and the internal user department. The external supplier in the supply chain ensures delivery of the right quality goods and services, in the right quantities, at the right market price, in the right place and at the right time. On the other hand, the internal user departments ensure they effectively communicate their

purchase needs by drawing and providing comprehensive and clear specifications on time. This ensures that purchase needs are clearly understood by the external supplier. The procurement department is the agent between the two, ensures that the needs of the external supplier are met by ensuring timely receipt and inspection of supplied goods and timely payment of the supplied goods and services. Moreover, assist the user department in drawing clear specifications and timely delivery of the requested goods and services. This implies that supply chain performance can only improve if strategic win-win partnerships with both the external suppliers and internal customers are fostered.

The coefficient of inventory management was positive and statistically significant. This implies that holding all other independent variables (procurement planning, financial resource management, strategic partnerships) constant, a unit increase in inventory management will cause a positive change in supply chain performance. This can be attributed to the fact that inventory is money held up in terms of stock and for any supply chain to be deemed efficient and effective it should meet the customer requirements at the minimum cost. Also, good inventory management practices enhance supply chain performance in terms of reduced costs and increased responsiveness to customer demands.

Based, on the findings of the study, the general conclusion drawn was that strategic partnerships and inventory management had a significant effect on supply chain performance whereas, procurement planning and financial resource management had an insignificant relationship on supply chain performance. This implies that supply chain performance could not stand alone without the other factors in the model.

#### **5.4 Recommendations**

The study recommends that Universities incorporate procurement planning in the annual institutional training calendar. This will see through the procurement department training of user departments on the importance of proper procurement planning and how to prepare comprehensive procurement plans that take into account all the purchase needs,

which in turn ensures the smooth running of the user departments and the entire institution. Moreover, quarterly or semi-annual reviews of the prepared procurement plans can be done to incorporate all the unforeseen purchase needs that may have arisen from the time the procurement plans were prepared.

Concerning financial resource management, Public Universities, through the procurement and finance departments should move a step ahead to put in place measures to mitigate factors that could be affecting effective financial resource management. This can be achieved by trying to mitigate the adverse impact of inflation by ensuring intensive cost estimation based on the market rates and realistic forecasting on the cost of items. Moreover, Public Universities should come up with alternative sources of income generation to enhance financial resources thus reducing overreliance on government funding.

Kenyan public universities through the procurement departments should invest more in the creation of strategic partnerships with both suppliers and customers who are the user departments. Strategic supplier partnerships will ensure there is regular and timely sharing of critical supply chain information with the suppliers, creation of platforms for suppliers to give feedback and inquiries and ensure timely response to the inquiries made. Moreover, they should embrace periodic supplier performance appraisals and ensure they train suppliers who lag in performance after the appraisal is done and most importantly ensure prompt payment of the delivered goods, works and services. This will not only ensure the timely delivery of goods and services by the suppliers but also ensure delivery of quality goods reducing the number of rejections and returns. This will also create room for price and quantity discounts from the suppliers. Also, they should create a close relationship between the procurement department and user department, which will ensure that user requirements are captured well and early enough thus influencing a smooth flow of the procurement and supply chain process.

Concerning inventory management public universities through the procurement department and stores section need to maintain a balanced flow of inventory. This will ensure there is no holding of too much inventory translating to a lot of financial

resources held up in terms of stock or too little that will translate to frequent stock-outs, impacting negatively on service delivery and customer satisfaction. This can be achieved by keeping up to date and accurate inventory records, regular stock-taking to ensure inventory records match with the current inventory held in stock. Moreover, they should study and understand the demand for various items used in the university so that they can understand what they need to hold and what they need not hold in stock. Also, re-ordering should be based on inventory balances and they need to come up with minimum inventory levels so that the process of re-ordering begins when the stock reaches the set inventory levels.

Finally, to avoid procuring items of poor quality, delays in supply and provision of services, ethics in procurement processes have to be respected. This can be achieved by anchoring the ethical standards to be followed in the institutional procurement policy and ensuring adherence and compliance with them. Equally, management of the procurement process should always be administered by qualified, competent and experienced procurement professionals, meaning that during recruitment of procurement staff, minimum qualifications have to be set beforehand to ensure only qualified professionals are shortlisted and finally hired. This will not only help maintain good procurement standards but also will help achieve high levels of efficiency and effectiveness.

### **5.5 Suggestions for further study**

The research covered procurement practices on supply chain performance in selected public universities in Kenya. A replication of this study should be carried out in the private universities in Kenya and other countries to demonstrate the significance of the explored procurement practices on supply chain performance to establish whether it will yield similar results. This would help in making generalizations that may be universally adopted to affect supply chain performance. Moreover, the study adopted procurement planning, financial resource management, strategic partnerships and inventory management as procurement practices, further studies can be carried out to include other procurement practices that may affect supply chain performance. Further studies can be

carried out to establish the effect of the adopted procurement practices on procurement performance since this study covered the effect of procurement practices on the entire supply chain performance to find out whether the explored practices had a similar effect on procurement performance.



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## APPENDICES

### Appendix I: Letter of Introduction

LindaJoan Ntinyari Kaaria  
School of Business and Economics  
University of Embu  
Tel: 0713014266  
[lindakaaria@gmail.com](mailto:lindakaaria@gmail.com)

The Human Resource Manager

.....

Dear Sir/Madam,

#### **RE: ACADEMIC RESEARCH**

I am a Masters candidate in Business Administration majoring in the supply chain in the School of Business and Economics at the University of Embu. I am collecting data for my research on: **“procurement practices and supply chain performance of Public Universities in Counties in the Eastern and Central Region of Kenya.”**

Your University has been selected among the Public Universities in counties in the Eastern and Central Region of Kenya to be part of this study. I kindly request you to allow me to collect data from your University by administering the attached questionnaires to your staff working in the Procurement, Stores and Finance departments.

*The information given will be treated with the utmost confidentiality and will strictly be used for the sole purpose of this study.*

Thank you and God bless.

Yours faithfully,

Ms. LindaJoan Kaaria  
Masters Candidate, MBA  
**University of Embu**

## Appendix II: Questionnaire

I kindly appreciate your time and cooperation in completing this questionnaire. This will take you just a few minutes to complete. This questionnaire aims to collect data for the study titled **“Procurement practices and supply chain performance of public universities in counties in the Eastern and Central region of Kenya.”** This research is purely for academic purposes information provided will be treated with the utmost confidentiality and hence the results will not be traceable to you or any person. I, therefore, urge you to freely answer the questions as honestly as possible. The questionnaire is divided into six sections. Kindly follow the instructions given at the beginning of each section.

### PART A: GENERAL INFORMATION.

Please place a tick (✓) or write your responses where appropriate box/ spaces provided

1. Kindly tick your gender

Male  Female

2. What is your highest level of education?

Secondary  Certificate  Diploma

Bachelor's Degree  Masters Degree  PhD Degree

Other (Specify).....

3. Current Employment Status

Permanent  Contract  Other (Specify).....

4. How long have you worked in the current position?

0 - 5 years  5-10 Years

10 -15 years  Over 15 Years



## PART B: PROCUREMENT PLANNING

This section has statements pertaining to Procurement Planning. The responses range as follows; **Strongly Agree (5)**, **Agree (4)**, **Neutral (3)**, **Disagree (2)** and **Strongly Disagree (1)**. Kindly respond by ticking against the appropriate response that best describes the situation in your institution.

| Statement  | (5) | (4) | (3) | (2) | (1) |
|--|-----|-----|-----|-----|-----|
| Procurement plans are prepared in your Institution   |     |     |     |     |     |
| Procurement Planning is done at the beginning of every financial year  |     |     |     |     |     |
| There is departmental Procurement Planning   |     |     |     |     |     |
| Members of departments are involved or consulted during departmental procurement planning                            |     |     |     |     |     |
| Procurement plans are forwarded to Procurement department after approval by head of department                       |     |     |     |     |     |
| Procurement department consolidates the departmental plans into an institutional Procurement Plan                    |     |     |     |     |     |
| Departments receive communication on their approved procurement plans  |     |     |     |     |     |
| Purchase needs arise from user departments in line with their procurement plans                                      |     |     |     |     |     |
| Purchase for goods and services are made in strict adherence to the procurement Plans                                |     |     |     |     |     |
| All user departments purchase needs are fulfilled strictly within the timelines stipulated in the procurement plans. |     |     |     |     |     |

## PART C: FINANCIAL RESOURCE MANAGEMENT

This section has statements pertaining to financial resource management. The responses range as follows; **Strongly Agree (5)**, **Agree (4)**, **Neutral (3)**, **Disagree (2)** and **Strongly Disagree (1)**. Kindly respond by ticking against the appropriate response that best describes the situation in your institution.

| Statement   | (5) | (4) | (3) | (2) | (1) |
|---|-----|-----|-----|-----|-----|
| Budgeting is done at the beginning of every financial year                                    |     |     |     |     |     |
| Budgeting is done at departmental level   |     |     |     |     |     |
| Budgets are prepared in line with the departmental procurement plans                          |     |     |     |     |     |
| Departmental budgets are forwarded to finance department after approval by head of department |     |     |     |     |     |
| Departmental budgets are usually aligned to the main university's budget.                     |     |     |     |     |     |

|  |  |  |  |  |  |
|--|--|--|--|--|--|
| After budget approval funds are allocated to the departments   |  |  |  |  |  |
| Departments receive communication on their approved budgets  |  |  |  |  |  |
| Procurement of items is done as per the approved budgets   |  |  |  |  |  |
| Before any contract award is done or order given to a supplier funds are confirmed to be available as per the budget |  |  |  |  |  |
| Departments receive communication on vote head balances regularly  |  |  |  |  |  |
| There are departmental budget reviews to cater for any changes in the prevailing economic environment.               |  |  |  |  |  |
| Supplementary budgets are done to cater for vote heads which get exhausted before the end of the financial year      |  |  |  |  |  |

#### **PART D: STRATEGIC PARTNERSHIPS**

This section has statements pertaining to strategic partnerships. The responses range as follows; **Strongly Agree (5), Agree (4), Neutral (3), Disagree (2) and Strongly Disagree (1)**. Kindly respond by ticking against the appropriate response that best describes the situation in your institution.

| <b>Statement</b>  | <b>(5)</b> | <b>(4)</b> | <b>(3)</b> | <b>(2)</b> | <b>(1)</b> |
|---|------------|------------|------------|------------|------------|
| There is regular and timely sharing of critical supply chain information between the University and suppliers       |            |            |            |            |            |
| The University has created platforms to enable suppliers to give feedback and make inquiries.                       |            |            |            |            |            |
| Supplier inquiries are responded to promptly  |            |            |            |            |            |
| Suppliers deliver goods within the timelines stipulated in the Order/Contract                                       |            |            |            |            |            |
| Suppliers deliver goods that meet the specifications detailed in the Order/Contract                                 |            |            |            |            |            |
| Suppliers receive payments within 30 days from the date of delivery   |            |            |            |            |            |
| Supplier performance appraisal is periodically undertaken   |            |            |            |            |            |
| Suppliers are given feedback on the results of the Supplier performance appraisal.                                  |            |            |            |            |            |
| Training is done by the University to suppliers lagging in performance after supplier performance appraisal is done |            |            |            |            |            |

|  |  |  |  |  |  |
|--|--|--|--|--|--|
| Procurement guides user departments on how to draw good and clear specifications   |  |  |  |  |  |
| Procurement department acts promptly on received user purchase requests  |  |  |  |  |  |
| Procurement department always seeks clarification from user department on specification which are not clear in their purchase requests |  |  |  |  |  |
| Users are free to consult procurement department regarding their purchase needs  |  |  |  |  |  |
| Once deliveries are made by suppliers user departments are notified immediately  |  |  |  |  |  |
| Procurement department organizes trainings for user departments to sensitize them on procurement issues and processes.                 |  |  |  |  |  |

**PART E: INVENTORY MANAGEMENT**

This section has statements pertaining to inventory management. The responses range as follows; **Strongly Agree (5), Agree (4), Neutral (3), Disagree (2) and Strongly Disagree (1)**. Kindly respond by ticking against the appropriate response that best describes the situation in your institution.

| <b>Statement</b>  | <b>(5)</b> | <b>(4)</b> | <b>(3)</b> | <b>(2)</b> | <b>(1)</b> |
|---|------------|------------|------------|------------|------------|
| Up to date records of inventory are always maintained   |            |            |            |            |            |
| Complete accounts of inventory received/issued is always maintained                                     |            |            |            |            |            |
| There is control on who and how to handle inventory records   |            |            |            |            |            |
| There are laid down procedures on how to update inventory records                                       |            |            |            |            |            |
| Regular stock-taking is done to ensure inventory records match with the current inventory held in stock |            |            |            |            |            |
| Re-ordering is done based on inventory balances   |            |            |            |            |            |
| Only common user items and items critical to the operations of the institution are held in stock        |            |            |            |            |            |
| High-value items are only held in stock on order which must be approved by the management               |            |            |            |            |            |
| Inventory turnover contributes greatly to inventory investment  |            |            |            |            |            |
| Only fast-moving inventory is held in stock   |            |            |            |            |            |

## PART F: SUPPLY CHAIN PERFORMANCE

This section has statements pertaining to supply chain performance. The responses range as follows; **Strongly Agree (5)**, **Agree (4)**, **Neutral (3)**, **Disagree (2)** and **Strongly Disagree (1)**. Kindly respond by ticking against the appropriate response that best describes the situation in your institution.

| <b>Statement</b>  | <b>(5)</b> | <b>(4)</b> | <b>(3)</b> | <b>(2)</b> | <b>(1)</b> |
|---|------------|------------|------------|------------|------------|
| <b>Customer Satisfaction</b>  |            |            |            |            |            |
| Complaints from user departments in the university are minimal  |            |            |            |            |            |
| Complaints from suppliers in the university are minimal   |            |            |            |            |            |
| Service delivery in our university is adequate  |            |            |            |            |            |
| <b>Quality of Goods &amp; Services</b>  |            |            |            |            |            |
| The university inspects delivered goods & services against specifications to ensure receipt of quality goods & services |            |            |            |            |            |
| The university majorly receives quality goods & services from suppliers/service providers                               |            |            |            |            |            |
| The number of rejections for goods delivered in the university is minimal   |            |            |            |            |            |
| The number of returns of delivered goods to suppliers in the university is minimal                                      |            |            |            |            |            |
| <b>On-time Delivery</b>   |            |            |            |            |            |
| Deliveries are made within the timelines specified in the order/contract  |            |            |            |            |            |
| Orders requiring urgent deliveries are responded to promptly by suppliers   |            |            |            |            |            |
| <b>Cost Savings</b>   |            |            |            |            |            |
| Prices of all procured items are usually within the market rates  |            |            |            |            |            |
| The University receives price discounts on delivered goods & services   |            |            |            |            |            |
| The University obtains economies of scale through bulk purchases  |            |            |            |            |            |

**THE END**

**THANK YOU**

### Appendix III: Summary of the Research Gap

| <b>Author &amp; Year</b>    | <b>Focus/ Title of the Study</b>  | <b>Methodology Used</b>            | <b>Key Findings of the Research</b>  | <b>Knowledge Gap</b>   | <b>The focus of the Current Study</b>  |
|-----------------------------|---|------------------------------------|--|--|--|
| Jackline Akoth Otero (2017) | Effect of procurement practices on procurement performance of public sugar manufacturing firms in Western Kenya | Descriptive survey Research Design | The study findings revealed that procurement planning had a positive and insignificant impact on the procurement performance whereas staff competence had a strong positive and significant impact on the procurement performance of sugar manufacturing firms in Western Kenya studied. | The research focused on procurement planning and staff competence as the only procurement practices affecting procurement performance which is internal overlooking the effect that the external parties such as the suppliers have on the performance of procurement, which this study will focus on strategic partnerships with suppliers. | This study will adopt practices; procurement planning, financial resource management/allocation, strategic partnership and inventory management that focus on both the internal and external environment and systems of an organization. |
| Nyanjala Eric Opio (2016)   | Procurement practices and supply chain performance of Telecommunic  | Descriptive Survey                 | The study established that all firms in the telecommunication industry employed the procurement practices and the practices were adopted to streamline and make the  | The study adopted the procurement practices to be supplier partnerships, adoption of information technology, Contract  | This study will adopt procurement planning, financial resource management/ allocation, strategic   |

|                             |   |   |   |   |  |
|-----------------------------|---|---|---|---|--|
|                             | ation firms in Kenya  |   | procurement process more efficient and enhance a centralized procurement system hence reducing costs.   | monitoring and control and lean procurement. The study, however, overlooked the importance of planning, financial resources and inventory management which are key in ensuring a lean and agile supply chain.   | partnerships which focus both on the supplier and the customers, unlike the earlier study which only focused on the supplier and inventory management to be the procurement practices. |
| Irene Wairimu Ngunyi (2014) | Procurement practices and the performance of parastatals in Kenya | Descriptive Cross-Sectional Research Design | The study found out that procurement is both a driving force to competitive strategy selection and an important resource for achieving improved organizational performance. It further found that if procurement practices are employed effectively then is expected to improve firm – customer relationship, preserve the environment, motivate and improve the coordination of staff. | The study focused on procurement practices and their effects on the general organizational performance but did not specifically look into the effects of the procurement practices on the supply chain performance which is also an aspect that plays a role in organizational performance. | This study will focus on procurement practices and their effect specifically on supply chain performance.  |

|                     |   |            |  |  |   |
|---------------------|---|------------|--|--|---|
|                     |   |            |  |  |   |
| Makabira D.K.(2014) | Role of procurement practices on the performance of corporate organizations in Kenya: A case study of Kenya National Police Service | Case study | The study revealed that procurement planning, controls, monitoring and staff training in procurement practices have a great role in the performance of Kenya National Police Service | The study emphasized on procurement planning, procurement control, procurement monitoring and training as procurement practices affecting the performance of corporate organizations. The study overlooked the financial resource management and allocation aspect and inventory management aspect of procurement which is essential, which this study will adopt as practices. Moreover, the methodology used in this study is a case study while this study will adopt a descriptive survey. | Despite looking at the procurement planning and the issues revolving around procurement monitoring and control the study will also adopt a look at financial resource management, strategic partnerships with the procurement clients and inventory management along which the planning, training and monitoring and control spans and the methodology is a |

|                            |  |                             |  |   |  |
|----------------------------|--|-----------------------------|--|---|--|
|                            |  |                             |  |   | descriptive survey   |
| Rotich Mathew Kibet (2014) | Dynamic procurement practices and supply chain performance of Supermarkets in Nairobi, Kenya | Descriptive Research Design | Findings reveal to a great extent that; the supermarkets have built long term relationship aimed at improving supply chain performance and has built long term relationship between its suppliers to improve its strategic and operational capacity and to enhance its value addition. The supermarkets have become more competitive, flexible and efficient concerning procurement practices. | The research has a contextual difference as one focused on procurement practices and supply chain performance of supermarkets which are private entities whose management and regulations is dependent on the owners and are privately funded, profit-oriented and whose performance is in terms of the profits made, while this research will focus on procurement practices and supply chain performance in public universities which are public entities and are funded by taxpayers money and focuses on the supply chain, not in terms of profit made, | This research will focus on procurement practices in public universities which are publicly funded by taxpayers' money and who are governed by the public procurement law. |



|                       |   |            |   |   |  |
|-----------------------|---|------------|---|---|--|
|                       |   |            |   | but services rendered to the citizens and the efficiency and effectiveness achieved when rendering these services.  |  |
| Eric Namusonge (2013) | The effect of financial resources on procurement planning in public institutions in Kenya: A Case Study of Kenya Airports Authority | Case Study | The study findings revealed that financial resources affected procurement planning. The organization did have financial budgets for the financial year however these budgets were insufficient to the procurement needs thus affecting the procurement process and procurement plans. | The study focused on financial resources and its effect on procurement planning, while this study will look at the effect of procurement practices; procurement planning, financial resource management, strategic partnership and inventory supply chain performance. Moreover, the methodology used in this study is a case study while this study will adopt a descriptive survey. | This study will focus on the effect of procurement practices; procurement planning, financial resource management, strategic partnership and inventory management and supply chain performance in public universities counties in the eastern and central region of Kenya. |

#### Appendix IV: Factor Analysis KMO Results for Independent Variable

##### a) Procurement Planning

###### KMO and Bartlett's Test

|  |                    |         |
|--|--------------------|---------|
| Kaiser-Meyer-Olkin Measure of Sampling Adequacy. |                    | .762    |
| Bartlett's Test of                               | Approx. Chi-Square | 286.241 |
| Sphericity                                       | df                 | 45      |
|  | Sig.               | .000    |

##### b) Financial Resource Management

###### KMO and Bartlett's Test

|  |                    |         |
|--|--------------------|---------|
| Kaiser-Meyer-Olkin Measure of Sampling Adequacy. |                    | .725    |
| Bartlett's Test of                               | Approx. Chi-Square | 326.654 |
| Sphericity                                       | df                 | 66      |
|  | Sig.               | .000    |

**c) Strategic Partnerships**

**KMO and Bartlett's Test**

|  |                    |         |
|--|--------------------|---------|
| Kaiser-Meyer-Olkin Measure of Sampling Adequacy. |                    | .837    |
| Bartlett's Test of                               | Approx. Chi-Square | 425.995 |
| Sphericity                                       | df                 | 105     |
|  | Sig.               | .000    |

**d) Inventory Management**

**KMO and Bartlett's Test**

|  |                    |         |
|--|--------------------|---------|
| Kaiser-Meyer-Olkin Measure of Sampling Adequacy. |                    | .878    |
| Bartlett's Test of                               | Approx. Chi-Square | 267.247 |
| Sphericity                                       | df                 | 45      |
|  | Sig.               | .000    |