

**SUPPLY CHAIN MANAGEMENT PRACTICES AND ORGANIZATIONAL
PERFORMANCE OF PUBLIC UNIVERSITIES IN KENYA**

BY

KIPLAGAT HILLARY KIPRUTO

**A RESEARCH PROJECT SUBMITTED IN PARTIAL FULFILLMENT OF THE
REQUIREMENTS FOR THE AWARD OF THE DEGREE OF MASTER OF
BUSINESS ADMINISTRATION, SCHOOL OF BUSINESS, UNIVERSITY OF
NAIROBI**

DECEMBER, 2017

DECLARATION

I, the undersigned, declare that this is my original work and has not been presented to any institution or university other than the University of Nairobi for examination.

Signed: _____ Date: _____

KIPLAGAT KIPRUTO HILLARY

D61/82728/2015

This Research project has been submitted for examination with my approval as the University supervisor

SUPERVISOR

Signed: _____ Date: _____

S.ONSERIO NYAMWANGE

Lecturer, Department of Management science

School of Business,

University of Nairobi

This Research project has been submitted for examination with my approval as the University supervisor

SUPERVISOR

Signed: _____ Date: _____

NANCY MARIKA

Lecturer, Department of Management science

School of Business,

University of Nairobi

AKNOWLEDGEMENT

First and foremost, I thank God for guiding me this far. The journey has not been easy but through him I made it. My acknowledgments and heartfelt appreciation goes to the University of Nairobi particularly School of business for providing me with a chance to pursue this precious course. My special gratitude goes to my supervisors Mrs. Nancy Marika and Onserio Nyamwange for their commitment, guidance and progress of this work.

DEDICATION

This project is dedicated to my loving Father Moses Kiptoo Kipsambu who remained at my side and supported me throughout this journey and asking for nothing. Without his support and help it would not have been possible hence through his teaching on the value of education and constant encouragement contributed to this piece of work. I am eternally grateful to Mr. and Mrs. Kipsambu for their full support both financially, socially and shelter. I also dedicate it to my Mum and Felishana Cheronno who stood by me, prayed for me and loved me unconditionally as long as I can remember. They hold a dear place in my heart and I thank God for their love and support throughout my MBA course

ABSTRACT

The study adopted a descriptive design and was based on the following objectives: to determine the degree which supply management chain practices have been implemented among public universities in Kenya, to establish connection between SCM practices on performance of public universities in Kenya and to determine the challenges faced by public universities in implementing SCM practices. A census approach was adopted and the census consisted of all the public universities in Kenya .Findings weredisplayed by use ofttables for easy understanding. Data was analyzed using Statistical Package for Social Sciences (SPSS) and measures of central tendency and measures of dispersion used to analyze and present the data. These were mean, standard deviation and frequency distribution. The findings from the studyrevealed that supply chain management practices have been implemented at public universities to a large extent with outsourcing and information sharing being the most implemented with highest means .The study findings revealed positive and significant associationamongst SCM practices and performance of public universities in Kenyahence management of the public universities need to build a strong affiliationamong supply chain management practices and institutional performance to have a competitive institution. In regard to challenges faced during adoption of SCM practices, the findings out that public universities has faced challenges to a moderate extent with high cost of implementation and lack of top management support being commonly faced challenges. A 5 -point likert scale was used to analyze output of each response received from respondents and therefore from the study findings conclusions can be made thatsupply chain management practices affected organizational performance to a moderate extent. The research also concludes that public universities in Kenya have adopted supply chain management practices to a large extent faced challenges to a little extent. The research also concludes that extraordinary cost of adoption, lack of management support and training in implementation of supply chain management practices were the most faced challenges. The study recommends universities to hire competent procurement staff that can be entrusted in implementation, management and measurement of the supply chain management practices. These employees should also be trained and motivated so as to reduce the margin of error and chances of mismanagement or sabotaging of SCM practices implementations.

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ABBREVIATIONS AND ACRONYMS

CRM	Customer relationship management
EDI	Electronic data interchange
ERP	Enterprise resource planning
ICT	Information Communication Technology
PPDA	Public procurement and disposal Act
PPDGM	Public procurement and disposal General manual
RBV	Resource based view theory
RDTR	Resource dependency theory
SCM	Supply Chain Management
SPSS	Statistical package for social sciences
SRM	Supplier Relationship Management
TQM	Total quality management

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

In reaction to the density of diversification, progressively competition, and unpredictable market forces, several firms are actively seeking techniques to optimize their supply chains and increase their performance (Hill, 2007). This is achieved by adopting supply chain management practices which ensures supply chain optimization hence profitably delivering quality products, services to consumers and while exceeding their product expectations. Extensive studies have been dedicated to various areas including management, and optimization of service delivery systems, with a view to raising organizational performance (Soteriou&Zenios, 1999).

Supply chain management practice and efficiency is the critical concern for many organizations in order to ensure long-term profitability and consistency. Supply chain management has proved critical to not only manufacturing firms, but to all institutions that or provide services (Edgeman& Guerrero 1999).

Studies have indicated that effective implementation of SCM practices has the potential of contributing to enhanced organizational performance. For instance Frohlich& Westbrook (2001) recognized combination of five strategies: internal facing; outside facing; vendor facing; consumer facing and external facing. Their study revealed that companies that had a higher degree of supply chain management practices such as integration with suppliers and customers showed very high performance. Organizations through developing effective supply chains, have acknowledged opportunities for creation of sustainable competitive advantage which is important to any firm in

influencing various competitive dimensions including quality delivery, timeliness in service delivery, innovation and service delivery, and customer satisfaction levels (Cooper, Lambert & Pagh (1997)

SCM practices are defined as set of actions performed in an organization for the purpose of ensuring effective management of supply chain (Li *et al.*, 2006). Public universities in Kenya needs to reintegrate their decisions on supply chain management practices with a view of benefiting from the vast benefits associated with adoption of supply chain management practices therefore enabling competitive leverage against their competitors and hence delivery of quality education and research (Kanjejo ,2012)

1.1.1 Supply Chain Management Practices

SCM practices consist of agreed actions or activities pursued by firms with the aim of managing their supply chains in an effective and efficient manner (Tomi&Solakivi, 2014). Supply chain practices to be used as variables in this study includes the following; supply chain outsourcing, use of supply chain information communication technology, supplier strategic partnership, maintaining customer supplier relationships; sharing of information as well as total quality management. Information sharing is the ability and readiness of partners in the supply chain to share various tactical or strategic data and other information perceived to be of importance in making chain strategic. Supply chain players needs to share information relating to inventories, forecasting and strategies adopted in marketing and customer awareness in order to eliminate or minimize various uncertainties between supply partners hence ensuring the best organizational performance (Salcedo&Grackin 2000).

Supply chain is system consisting of organizations that are engaged in the process and activities of acquiring inputs, production and finally distributing value added inputs to the downstream level for consumption by ultimate customers (Christopher, 1998). According to Cigolini, Cozzi&Perona, 2004), SCM has three essential components which are: value creation, combination of key business processes and partnership. Therefore in this theoretical literature, the definition given to supply chain management is an organization's line of the thinking that involves the managing and incorporation of selected key corporate processes from customers and suppliers who delivers goods, services, and information needed for value addition to customers and other stakeholders requirements or expectations through the combined efforts of supply chain participants (Cigolini *et al.*, 2004)

Outsourcing is a management strategy through which a company assigns non-critical activities to specialized and more efficient service providers such that the organization can be left to perform and concentrate only with the core business activities. According to Kakabadse (2002), outsourcing activities have existed for centuries and the earliest outsourcing activities were found in the prehistoric Roman Empire where tax collection was done through outsourcing. The newest development in SCM practices include partnering with suppliers, outsourcing, compression of lead time, continuous process flow, as well as information technology sharing (Donlon, 2012).

Tan, Lyman, & Wisner (2002) used procurement, product value, and firm/customer relationships in their empirical study to represent SCM practices. Additionally through factor analysis, elements such as supply chain integration, sharing of supply chain information, supply chain characteristics, buyer service management, physical proximity

and just in-time (JIT) was identified. SCM practices encompass multi-faceted concept which entails long-term supplier partnership, buyer relationships, extensive sharing of information and quality of the information shared and postponement (Li *et al.*,2004).

Spina (2015) identified several supply chain practices alliances, demand and supply planning, Inventory, production distribution, transportation optimization among others and studied their effect on SCM performance. The current study aims at investigating how; outsourcing, supply chain collaboration, information sharing, performance management, total quality management and use of ICT as the key supply chain practices enhance organizational performance among public universities in Kenya. Public universities can ultimately improve on their overall performance through effective use of supply chain practices due to the belief that there can be direct or indirect influence of performance by partners in the supply chain which will ultimately influence the performance of all other members in the supply chain, as well as the overall organizational performance (Cooper *et al.*, 1997).

1.1.2 Organizational performance

It is a process by which a organizations assesses the progress towards the achievement of goals that have been predetermined, including the information about how efficient the transformation of resources into goods and services (outputs) is, the output quality that is how well delivery is done to clients and the levels of customer satisfaction and outcomes (Terrel, 2003). Organizational performance of public universities is entirely measured by assessing key metrics such as the quality of service offered to customers ,flexibility extent of the university supply chain and operational systems, cost implications whether

favorable or unfavorable and customer satisfactions levels which represents the customer reaction of feeling when the practices are adopted by the university (Amollo 2016)

Abdifatah (2012) argued that the performance of some organizations such as humanitarian organizations is impacted by dynamics such as good supplier relationship management, the existence of effective and efficient internal operations, ensuring that there is continuous improvement in the supply chain, having in place agile manufacturing processes, engaging technologies in speeding humanitarian activities, strategic alliances by organizations and straightforwardness in-house tasks are among the practices prevailing among humanitarian organizations in Kenya.

Performance measurement entails the emphasis on the in-house process of measuring the usefulness and efficiency of action plans using various key performance indicators a set of metrics (Gathungu&Mwangi, 2012).Poister (2003) emphasized that the main aim of carrying out performance measurement is to ensure objectivity and accuracy of information on programmes or organizational performance that can be valuable in strengthening management in making informed decision. He further notes that organizational performance can be measured using profitability measures such as return on assets and return on Equity.

Performance Management and Measurement refers to incorporated systematic approaches for heightening performance of an organization for purposes of achieving strategic goals as well as upholding and promoting organization's mission and values. From this definition it is quite clear that there is distinct difference between individual performance management and organization performance management in the sense that IPM specifically targets the personal performance of a worker although the latter

encompasses an essential part of the general organizational performance framework (Akyuz&Erkan, 2010). Organization Performance measurement needs to be integrated with Performance Management systems so as to quantify the efficiency and effectiveness of actions which is seen as a continuous practice for debate in public sector supply chain and organizational performance management (Yu *et al.*, 2013).

1.1.3 Public universities in Kenya

In Kenya, institutions of higher learning are created through Acts of Parliament including universities Act of year 2016 which provided for the establishment, accreditation, improvement of university education and the overall governance policies of these institutions (Onsongo 2007). According to Commission for university education, there are 31 public universities in Kenya and the availability of these universities has impacted either directly or indirectly on quality of workforce and research outputs hence development of new ideas, knowledge and utilization for socio-economic betterment of the societies henceforth playing an important role in growth of economies and generation of employment opportunities (Omollo 2016).

The functions of public institutions of higher learning are clear and includes the following, training and offering knowledge within a configuration combining research and teaching, offering specialized training in different, operating as exploration hubs, responsibility of carrying out research in a broad range of disciplines and playing a social function in nurturing the intellectual and social progress of the society (Martin &Tairo 2006). Public universities is incomplete and cannot be able to fully discharge its functions without effective and efficient supply chain in place hence should integrate and coordinate their supply chain .Universities depend on supply chain on various activities

such as overseeing and optimizing the process of acquiring inputs from suppliers, purchasing, storing the supplies and issuance of the same to customers (Public Procurement and Disposal General Manual, 2009).

Supply chain management issues in public sector which are very essential includes: achieving timeliness, reducing cost, reducing waste and maintaining acceptable quality in order to obtain value for money for goods and services which must be achieved while at the same time conforming to Public Procurement and disposal Act (2015) And Regulations (2006). Supply chain management legal framework for public fraternity provides fully devolved procurement processes, hence delegating full accountability to committee responsible for tenders and the procurement unit at the level of public universities for undertaking procurements activities such as procuring materials and prequalifying suppliers for various roles (PPDA, 2015).

1.2 Research Problem

Amollo&Kanjenjo through their findings derived into consideration that public universities in Kenya are facing serious situations which needs to be addressed by adoption of supply chain management practices. They further noted that quality of education and research is diminishing at alarming rate due to the rampant corruptions and collusion with suppliers which has resulted to procurement of low quality, substandard learning materials.

Unfortunately this has seen massive increase of operational cost and reduced customer satisfaction and drop in customer loyalty and firm's reputations. However, institutions are realizing the strategic role played by supply chain management towards the achievement

of the institutions performance both private and public sector hence compelled to upgrade their standards of performance with a view to creating value for money in the production of goods and delivery of services (Lambert & Cooper 2000).

Kanjejo (2012) carried out supply chain research on LSCM practices adopted in the public universities in Kenya but fail to touch on supply chain practices hence forming justification of this study in order to cover the overall supply chain practices and existing relationships with organizational performance. My focus was on management of the supply chain together with the practices in supply chain management such as information sharing, outsourcing, developing customer-supplier relationships, strategic supplier partnering, use of Information communication and technology and performance management.

Since SCM is key driver in competitiveness of any industry, the study of SCM practices in public universities and how they impact on performance is thus an important concept to study. Govindarajuet *al.*, (2011) carried out a study on the consequences of supply chain management practices to performance of the supply chain in electronics industry in Malaysia and the findings concluded that six elements of SCM practices have visible positive role on SC performance.

Focusing on SMEs in Turkey, Lenny & Bayraktar (2007) studied the existing dimensions of SCM practices by empirically testing a basis ascertaining the relationships between SCM practices, operational performance and SCM-related organizational performance. Their findings indicated that both factors of supply chain lean practices, Outsourcing and multiple suppliers have positive and substantial impression on operational performance. In contrast, these three variables did not show any significant or direct influence on

Supply chain management-related organizational performance. Okongwu *et al.*, (2015) discussed the interrelationships amongst SCM practices and performance using a strategy map perspective of balanced scorecard. The study revealed that there are many strategic paths of different types that connect supply chain management practices and other intangible assets to financial performance.

Locally, Mwilu (2013) considering supply chain practices and performance among public research institutions, found out that while a number of SCM best practices had been adopted and implemented to a great extent by public research institutions, quite a number were not in place and concluded existence of strong statistical relationship between SCM and organizational performance in logistics, lean suppliers and information Technology.

Kanjenjo (2012) through her study on lean SCM practices in public universities in Kenya, pointed out that use of information technologies for sharing of information within departments helped in enhancing efficiency and effectiveness of departmental activities as well as ensuring quality services delivered to consumers. However imprecise procurement policies were concluded as a hindering factor to efficient and effective adoption of lean practices in the supply chain management. Mahulo (2015) examined management practices in the supply chain and their impact on performance of cement companies in Kenya and the findings showed near perfect positive relationship between independent and dependent variables.

Past studies have discussed the way in which supply chain management practices impact performance, none has focused on addressing the interconnection between supply chain practices and how they affect performance in public universities in Kenya and therefore this study established how supply chain management practices impacts performance

among public universities in Kenya by answering the following key questions: To what extent has the supply chain management practices been implemented at public Universities? What are the relationships between supply chain management practices and the performance of public universities? And lastly the challenges faced by public institutions in implementing best practices in supply chain?

1.3 Research Objectives

This study was guided by the general objective which is to establish impact of supply chain management practices on performance of public universities. Specific objectives include

- i.** To determine the extent to which supply management chain practices have been implemented among public universities in Kenya.
- ii.** To establish the relationship between SCM practices on the performance of public universities in Kenya.
- iii.** To determine the challenges faced by public universities in implementing SCM practices.

1.4 Value of the study

This research will aid the government of Kenya in formulating policies and programs that are aimed towards implementations of SCM practices in Public Universities. The implementation of such policies will lead to improvement of quality of education of the public universities. Public universities will benefit from the improved organizational performance and sustainability of effective practices in their value chain activities which

include: lead-time reduction, quality delivery, sustainable supply of goods, work and services to their customers.

The study is also expected to be of significance to public universities especially in improving implementation and management of their supply chain practices as well as evaluating their performance for the purpose of achieving higher effectiveness & efficiency in their supply chains. Also the findings may be useful to the government and Commission for Higher Education in Kenya in terms of provision of resources and revision of university education policies.

The study touched on the weaknesses in the public supply chains and will enable managers in these universities to develop measures to improve performance in their supply chains. The study will also act as a basis for public universities to borrow best practices from the private sector to enhance their performance and enable an assessment to be done on how service levels can be improved with proper measurements in place. The academic community will gain from the findings since it will act as a source point on empirical data on SCM practices, and will also identify areas that are in need of further study.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This section aims on reviewing existing literature on practices used in managing supply chain as well as the impacts of such practices on organizational performance of public universities in Kenya. The accessible literature gives the basis of the research and consists of the broad outline of SCM practices, organizational performance and conceptual framework. The section also outlines the conceptual framework that shows the interrelationship between SCM practices and organizational performance.

2.2 Theoretical Literature Review

Theoretical literature review explores presented concepts and theories in supply chain management that will be of relevance to supply chain management practices on organizational performance of public universities in Kenya. The study theoretical framework is based on two theories which include Resource dependence theory (RDT) and the resource-based view (RBV) theory.

2.2.1 Resource Dependency Theory

The Resource dependence theory was developed by two scholars which included Jeffrey Pfeffer and Gerald Salancik in 1978 explaining how external resources used in manufacturing and delivery of goods and services affects organizational operations. The basic argument of this theory was that organizations or firms were dependent upon resources originating from the environment, made up of various organizations.

The primary assumption of Resource dependency theory was to ensure organizational continued existence by reducing any condition of uncertainty, reliance and characterization of organizations as open system, depending on external environment contingencies (Pfeffer&Salancik, 1978). However, supply chain managers can minimize these environmental uncertainties or dependencies through numerous measures, where the concept of power is the essential stage. According to (Hillman *et al.*, 2009), this measures includes engagement in mergers and acquisitions, partnership, composing and structuring the board of direction, political actions, and executive successions as juxtaposed actions. Moreover, an organization can utilize their customer/supplier's partnerships, ability and profit (Slowinsket *al.*, 2009).

Based on the notion that supply external and market environment is inherently unstable, literature claims that resource dependency theory provides a framework on how organizational and supply chain activities can reduce uncertainty resulting in a more stable supply market (Handfield,1993).

Resource dependency theory assumes that buyers and vendors are interconnected in a network by Resource dependence and the interrelationships characterized by exchange of owned resources and co-creation of new resources and opportunities (Sanderson *et al.*, 2015). RDT supports the practice of outsourcing which is one of the practices that the current study covers. This is because firms have different competencies and through outsourcing they are able to gain access to resources that are within the environment (Vincent &Delke 2015).

2.2.2 Resource Based View

The resource-based view (RBV) puts a lot of weight on the significance of resources owned by organizational and the fact that it is the key source of a firm's competitive advantage as well as performance. Barney & Peteraf (2003) argued that this model assumed that organizations within a business can be different depending on the package of resources being managed. Assumptions are also made by this model regarding resource heterogeneity that it may persist over time because of the immobility of the resources that are used in the implementation of firms' strategies across firms. Resources developed as a result of integrating supply chain functions are more important than an individual firm's resources.

Therefore according Halldorsson *et al.*, (2007), it is clear that companies engaged in supply chain resource integration gain more benefits in term of organizational performance and customer satisfaction. The models that can be derived from resource based view theory includes: arm's length relationships which can be associated with low supplier competencies, internal contracts related with competencies and lastly partnership relationships that can be associated with complementary competencies provided by external suppliers (Cox ,1996). The RBV therefore can steer organizations in creation of outsourcing decisions by making arrangements to acquire such competencies through cooperation with other firms (Hankinson & Snehota, 1999)

2.3 Supply chain management practices

Definition given by Ellram & Cooper (1993) on supply chain management concept presents it as integrating idea of managing material as well as flow of information from suppliers, manufacturer and the customers. Incorporated supply chain management

entails movement of the entire processes that are needed to be able to provide the customer with value, from the external customer and management in a horizontal way (Monczka& Morgan 1997).

Therefore organizations through effective supply chain practices compete to provide management as well leadership to the fully integrated supply chain with the inclusion of external customer and also prime suppliers as well as their suppliers. SCM practices is defined as set of actions performed in an organization for the purpose of ensuring supply chain is effectively managed (Li *et al.*, (2006)

Mentzer et al (2001) emphasize that supply chain is a set of organizations or individuals involved in flow of materials and information from upstream level down to customers at their point of consumption. Therefore organizations are able to ensure that with this set of activities, they promote a management system that is effective in regards to the supply chain and also attain competitive edge over their competitors (Tomi&Solakivi, 2014). This study was based on five dimensions of practices having potential influence on organization performance. This includes, supply chain outsourcing, use of ICT, strategic supplier partnership, customer supplier relationships and information sharing.

2.3.1 Outsourcing

This refers to when an organization decides to strategically perform actions that are usually performed internally, but utilize the resources that are external to the organization. Baily (2008) defined outsourcing as a strategy through which organizations contracts out functions that are major to service providers that are specialized as well as

efficient, and who in the long run become valued partners in business. This means that organization has to procure the material from an external supplier (Monczka *et al.*, 2010).

The outsourcing verdict is imperative due to its influence on overall costs of operations, outlining the borders that a firm draws around its operations and therefore possibility of internally engaging in activities considered to be part of their core activities, while outsourcing non critical activities (Monczka *et al.*, 2010). Lacity & Hirsch (1995) indicated that outsourcing may fail where an organization requires unique knowledge or when services are customized or where there is division among the employee ranks. The five major drivers of outsourcing are: quality, cost, finance, core business and collaboration (Beulen *et al.*, 1994).

McCarthy (1996) identified numerous key reasons why organizations may consider outsourcing amongst them is companies being allowed to direct their resources to suit core business activity, assisting firms in re-examining their income plans, cost reduction to make them more efficient, time and funds, improving the benefit plan of their employees through availing information that is more consistent and more available so as to ensure reduction of costs over the longer term.

Reid (1996) gave steps that organizations can follow in their efforts to outsource some of the functions with the first step being organizing management team for planning, monitoring, and overseeing the search for and transition to outsourcing. This is followed by identifying and engaging an expert team to guide organization team of independent experts with specialization during the outsourcing decision, selection, and contracting processes. According to Fill & Visser (2000), Outsourcing facilitates organizations to advance aggressive pressures, getting improved products and efficiency, enhancing the

access to reliable functional knowledge, as well as increasing the potential to create tactical alliances while decreasing internal managerial troubles.

2.3.2 Customer Supplier Relationships

It involves developing a good and lasting association between organization customers or suppliers with the objective of improving the organizational performance and enhancing speedy delivery of goods and services to ultimate customers. The studies on customer-supplier relationships are based on some established framework such as transaction cost and resource dependency theories (Fynes & Voss 2002).

In production firms, these associations' help in boosting performance and competitiveness by improving on cost effectiveness, quality and creating competitive advantage, with the commencement of strategic alliances amongst clients and vendors. Customer Relationship management has defined excellent real time consumer's services by creating affiliation with each valued customer through successful use of individual account information (Kotler, 2003).

According to Johnson & Fearon (2006), most customers and suppliers recognize the need for consistent and long-term relations as the best way of improving costs, increasing value, delivery, time and other performance measures of performance and therefore collaborative buyer-seller relationship can be characterized by mutual benefits and sharing of rewards, being committed to best quality, products that are free from defects and have design specifications that the process is capable of meeting.

Beth *et al.*, (2003) explained that supply chain challenge today is about building sustainable relationships. He also emphasizes that SCM is not just about software and

systems, but extends to existing relationships between customers and suppliers. As technology and marketplace grow more complex, a pool of talented people is needed to work the system up.

Barratt (2004) outlined that it is through close ties with suppliers that organizations are able to attain seamless flow of goods and materials, reducing operational cost, and on-time deliveries. Moreover, developing a good partnership between suppliers and customers leads to improved relationship, sharing of information and also process integration. These may be only achieved as a result of smooth communication that is flexible between the involved parties (Li *et al.*, 2010)

2.3.3 Information Sharing

Sharing of information refers to the degree to which significant and proprietary information gets communicated to a specific supply chain. The nature of the information may be strategic or tactic, about logistic activities, about the customers and market, availability of product, levels of inventory, expeditions and status on production requirement (Huang & Lau (2003)

There are numerous studies that indicate that information sharing amongst partners in the supply chain has significant impact on organization performance and efficiency of their supply chains. Sharing of information allows organizations to decide on better choices in regards to ordering, capacity allocations, manufacture and also material planning, due to better visibility of demand, supply and inventory. Lysons & Farrington (2006) argued that due to increased competitiveness in the market place, the speed at which information must be passed, shared within the supply chain and the accuracy of the information has

become critical success factor for many organizations. Organizations invest in modern software's that can manage inventory, trigger orders to the suppliers, track shipments, provide real time information on product availability and enable firms to engage in collaborative planning.

In particular Sanders (2010) stated that sharing information among partners in the supply chain has a leveraging power on the performance of organizational which results from elimination of possible inconsistency of the exchanged information therefore leading to the attainment of a platform for sharing information that is standardized. Thus the reduced inconsistency in shared information as regards to all types of supply chain doings, saves the firm from carrying out corrective as well as preventive courses which serves to pay off poor exchange of information between the partners

Childhouse&Towill (2003) revealed that simplified material flow from the upstream to the downstream level, including streamlining and making highly visible all information flow throughout the chain is an input to effective, efficient and integrated supply chain. Information technology has created new possibilities for improving firm performance more so if the information can be shared with the intended partners. Wu *et al.*, (2006) considered that alignment and advancement of IT are positively connected to supply chain abilities, which in turn are linked to organization's performance.

Fawcett and Magnan (2008) pointed out that sharing of information inside a supply chain experiences challenges such as the privacy of the shared information, issues to do with incentive, dependability and information technology cost, antitrust rules, the unchanging and accurateness of the information shared, and lastly the expansion of capabilities which permit organizations to make use of the information shared in an helpful way.

2.3.4 Strategic supplier partnership

This refers to a relationship that is considered to be continuing involving the organization and its suppliers. Its purpose is to help firms influence planned as well as operational capabilities so that they may be able to achieve consistent benefits through emphasis on direct, long-term association as well as encourage shared planning and problem solving efforts (Li *et al.*, 2006).

The theory of partnering refers to a variety of collaborative relationships and according to Lambert & Gardner (1996), three types of partnering exist namely : type one having limited interactions, type two firms having a longer time view of the relationship, and lastly organizations sharing a important operational and strategic combinations. Strategic partnerships are mostly for long term durations and encourage joint planning and problem solving.

Strategic partnerships functions to promote benefits that are mutual and also encourage continuous participation in area that are key to the organization like making use of technologies, materials management, and customer's satisfaction. Strategic supplier partnerships help organizations to be more effective in their dealings with a small number of suppliers who express the willingness to take responsibility of ensuring that the products are a success. By allowing these suppliers to participate in the process of product-design from the early stages means that the organization will get more insights regarding design choices that are cost effective, selection of the best components as well as technologies, and assistance in design assessment (Tan *et al.*, 2002).

Mbuthia and Rotich (2014) pointed out that strategically aligned organizations work closely together and eliminate wasteful time and effort in the process of moving materials

and products from the upstream to downstream levels of supply chains. According to Noble (1997) an effective supplier partnership can be a critical component of a leading edge supply chain

Organizations that engage in collaboration and early supplier engagement in product development, supplier appraisals and evaluation are able to mitigate supply chain risks and improve performance of their suppliers, while at the same time ensuring commitment to quality and on time delivery, (Lysons& Farrington, 2006).

2.3.5 Use of Information Communication Technology

Daugherty (1995) outlined that IT is key in supporting companies creating competitive advantage by enabling centralized strategic planning with day to day centralized operations. Organizations engage IT in their supply chain with the goal to seamlessly link the production point to the point of delivery or purchase with the view of monitoring the product's physical trail hence gather information that will allow for planning, tracking as well as assistance in the estimation of lead times based on the real information got from supply chain players.

Spathis&Constantinides, (2004) outlined various IT technologies in supply chain management, such as EDI, ERP and CRM systems which helps in improving supply chain and organizational performance and enabling vast advantages that range from direct operational gains to creating a strategic advantage. The adoption of IT in supply chain management is considered to be of significance due to its contribution in the effort to improve the general performance of the organization. This is because of its ability to

assist organizations in accumulating and building the knowledge regarding customers, suppliers, distributors, and main channels (Fasanghari *et al.*, 2008).

Sambamurthy *et al.*, (2003) alluded that international firms like Dell and Wal-mart possessed creative information technology solutions as their main capabilities and this enabled international them to create integrated systems which included activities both in the upstream as well as downstream within their organizations. Making use of IT was renowned to be important due to its positive contributions on organizational performance and management of firms supply chains.

Information is critical every organization and therefore every organization need to invest in information technologies such as use of barcode readers, ERPs, scanners and electronic data interchange which will enable them to access information that is accurate, immediate and comprehensive. This information when received on time will assist improve the process of decision making in all the organization levels (Beynon& Davies 2009).

2.4 Supply chain practices and organizational performance

Supply chain management practices are set of activities undertaken in an organization to promote effective management of its supply chain (Li *et al.*, 2006). Organization performance on the other hand refers to the extent to which an organization achieves the long-term oriented as well as the financial goals. It's an important parameter mostly defined as a dependent variable which seeks to produce variations of performance (Henri, 2010)

These activities assist organizations in promoting an effective management of their supply chain as well as the attainment of excellent performance and competitive edge

over their competitors (Tomi&Solakivi, 2014). Musau (2016) on his study on the impact of strategic outsourcing on organizational performance: a case study of Bidco Africa limited found out that cost driven outsourcing led to improved organizational performance by reducing costs and risks while increasing both long-term and short term operational efficiency. Further, the study found that innovation driven outsourcing improved organizational performance by enabling it to create, develop and deliver value to the market faster than its competitors.

According to Ruey& Bryan Jean (2008) on their journal on IT and organization performance found out that IT adoption in supply chain contribute directly to improved organizational process such as coordination, transaction specific investment, absorptive capacity and monitoring which in turn contribute to strategic and operational performance outcomes.

Strategic partnership with suppliers enables organizations to work more effectively with a few significant suppliers willing to share responsibility for the success of the organization (Li *et al.*, 2006). According to Tsai, (2007), Strategic supplier partnership in supply chain management is fundamental in yielding organizational performance.

According to Vereecke&Muylee (2006) strategic partnerships between suppliers and parent organization may have a major impact on supply chain and organizational performance. Additionally, preceding studies have indicated that the various components of SCMP (such as SSP) have an impact on various aspects of competitive advantage (such as price/cost) (Li *et al.*, 2006).From the previous literature, Customer supplier relationships, information sharing and total quality management also has a significant impact on firms performance because good relationships with both customers and

suppliers provides a framework for exchange of information which can be used to make accurate supply chain decisions.

2.5 Challenges faced in adoption of SCM Practices

Effective SCM relies more on an understanding of the business processes that must work together. The tasks in SCM are usually difficult because they require long periods of time and unlimited finances (McCormick, 2001). McCormick (2001) also noted that big companies were made up of industry units as well as attainments collected across the sphere. Long periods of time are invested so as to be able to integrate supply chains of companies of such magnitude. There is importance in having the knowledge on how people work, as well as the kind of information that is exchanged so as to be able to decide on which technologies can work and support these exchanges as well as the best way on how to connect them

McCormick refers to the “Tower of Babel problem” where different systems and standards are used for every individual customer. Supply chain firms usually struggle to find resources that will enable them acquire requisite technology systems. Human issues are also part of the challenges because workers may over-inflate forecasts or misrepresent inventory information and the first area to be cut in a budget allocation is SCM (McCormick, 2001). The internal operations of an organization stands a foundation that is critical in the creation of an advanced supply chain enactment and therefore must be considered before external coordination is embarked on. The flexibility of the internal processes in answering to market changes is key quest to gain competitive advantage over competitors. Supply chain management ensures that customer needs are incorporated during the process of production, and that there is flexibility to

accommodate changes as they occur. This ensures no compromise is made in mass customization and thus customer responsiveness is improved (Lambert & Cooper, 2000).

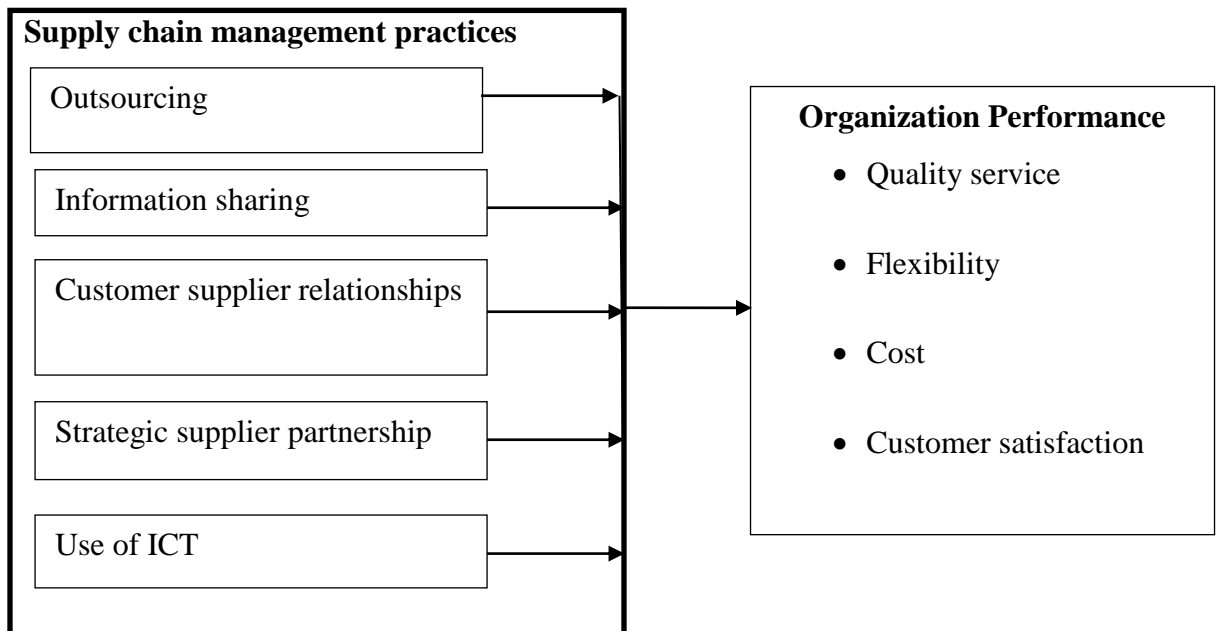
2.6 Conceptual framework

The conceptual framework outlined below illustrates how supply chain management practices influence organizational performance of public universities.

Independent variables

Dependent variable

Figure 2.1: Conceptual Model



Source: Researcher (2017)

CHAPTER THREE RESEARCH METHODOLOGY

3.1 Introduction

The chapter gives details regarding procedures and the methodology which was employed in conducting this research. Explanations are given about the research design adopted, the context of the study, the population targeted, the sampling technique, collection of data and the techniques used in the analysis of data collected.

3.2 Research Design

Descriptive research design was used to determine how supply chain management practices impacted the performance of public universities in Kenya. Descriptive studies helps in explaining the characteristics of a given group in a given situation by presenting data in a logical form (Kerlinger, 1999). The design provided in depth information about the characteristics of subjects within particular fields and thus it will aid in identifying relationships between variables

3.3 Study Population

The study population of interest comprised of all 31 public universities in Kenya. The study used census survey since the population was small

3.4 Data collection

This study used primary data and quantitative techniques hence questionnaires with both closed and open ended questions was administered to collect data because it facilitated collection of data from a large sample, and at the same time upholds confidentiality and saves time.

The questionnaires comprised of two sections where the first section enquired the respondents' background information while the second section entailed the university commitment to supply chain management practices and challenges faced during implementation of supply chain practices. The respondents consisted of head of procurement and supply chain sections or their equivalents in each university and the questionnaires was administered to the respondents personally to shorten the response time and enable on-the-spot clarification of any doubts that the respondents might have had regarding any questions. However, for distant universities, questionnaire was be self-administered through mailing

3.6 Data analysis

The data analysis was carried out using both descriptive statistical techniques where percentages, means and standard deviations were used. They were be entered into the Statistical Package for Social Sciences (SPSS) for analysis for easy understanding and interpretation hence drawing conclusions on findings, tables, graphs and charts used to determine SCM practices adopted together with their impacts on organization performance. Open ended questions was analyzed by developing coding categories used to examine patterns and trends in the responses hence making conclusions by writing down words or phrases to represent patterns and trends.

To be able to determine the existing relationship between SCM practices and organizational performance in public universities in Kenya the study used a regression which consisted of several variables combined together to fit the analytical model. The independent variables were (strategic supplier partnerships, customer-supplier

partnerships, information technology sharing and outsourcing) and the dependent variable (Organization performance of public universities) as provided in the model below

$$Y = a + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + e$$

Where

Y = organizational performance

a = is the Y intercept when x is zero, b₁, b₂, b₃, b₄, b₅ are regression weights attached to the variables.

e (Extraneous), Error term explaining the variability of the factors that are not mentioned.

X₁.....X_n = coefficients

X₁ = Supply chain IT

X₂ = Information sharing

X₃ = Strategic supplier partnerships

X₄ = Customer relations management

X₅ = Outsourcing

CHAPTER FIVE: SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

4.1 Introduction

The section presents data analysis, outcomes from the analysed data as well as the discussion of findings. Interpretation of data was done following the responses given about the research questions and objectives. Analysis of data was done using descriptive statistics and the results presented in tables and pie charts as appropriate.

4.2 General Information

This study targeted a sample size of 31 public universities in Kenya. A total percentage of 64% of the total 31 respondents filled in submitted back the questionnaires while the remaining 36 % did not. This implied that the rate of response was adequate for the researcher to move ahead and analyse the data collected so as to be able to make observations as well as conclusions. Regarding the Gender of the respondents, findings revealed that, 40% of the respondents were female while the remaining 60% were male. This indicates that the target population comprised of a higher number of male respondents as compared to the females. The findings also revealed that 5% of the respondents were 20-25 years, 40% had between 26-30years, and 50% had between 31-35years. Respondents above 35 years had 1%. From the analysis conclusions can be made that majority of the respondents were aged between 31- 35 yrs.

The findings on levels of education showed that 5% of the respondents had college level of education, 85% had first degrees and 10% had Master's degree. This implies that majority of the respondents represented by a figure of 85% had attained First Degree

level of education. Therefore, more than 84% of the participants in this study were highly qualified and eligible to provide accurate data based on their wide understanding of the study variables. Researcher further inquired about the work experience of the respondents and from the findings it can be concluded that 30% of the respondents had 1-5 years' experience, 25% of them having 6-10 years and majority of the respondents having 45% representing experience of between 11-15 years.

4.3 Supply Chain management Practices

The researcher sought to know the level to which SCM practices have been adopted by public universities in Kenya. Outsourcing, information sharing, supply chain information communication technology, customer relationship management and strategic supplier partnerships were considered and the respondents were asked to rate their effect on organizational performance. This was done on a Likert scale of 1-5 and illustrated by the table below

Table 4.1 SCM Practices Descriptive Statistics

Practices	Mean	Std. Deviation
Outsourcing	4.50	.513
Information sharing	4.40	.598
Use of supply chain IT	4.35	.671
Customer relationships Management	4.30	.571
Strategic supplier Partnerships	4.15	.587

Source Research Data (2017)

The findings from table 4.1 above revealed that supply chain management practices at public universities have been implemented to a large extent .Means of between 3.7500 and 4.5000 were registered with an overall mean of 4.06 registered indicating public universities in Kenya have embraced the merits associated with supply chain management practices. The findings corresponds with the literature review on research done by Mahulo (2015) on supply chain practices and its effects on performance of cement companies in Kenya which concluded that 60% of the cement firms in Kenya had adopted SCM practices to large extent.

4.5 Supply chain Management Practices and Organizational Performance

Respondents were asked to indicate whether a relationship existed and the extent to which SCM practices has impacted on performance of public universities in Kenya. Regression investigation was used to determine if a relationship existed between dependent and independent variable, as well as to determine the magnitude of the association amongst the study variables. The findings are as shown below

Table 4.2 Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Sig.F Change
	.810^a	.657	.534	.34835	.006

Source :Research Data(2017)

a. Predictors: (Constant),

From the results in Table 4.2 above, the five independent variables that were studied, explain 65.7% of the organizational performance as exemplified by the R². This implies

that the five independent variables contribute 65.7% to the organization performance to public universities while remaining 34.4% is explain by other factors which have not been captured in the study. The standard error of the estimate shows that on average, the performance level deviate from the projected regression line by a score of 0.34835.

Table 4.3 Analysis of Variance

Model		Sum of Square	df	Mean square	f	Sig.
1	Regression	3.251	5	.650	5.358	.006 ^b
	Residual	1.699	14	.121		
	Total	4.950	19			

a. Dependent Variable

b. Predictors: (Constant)

The table above indicates F static value as 5.358 and a significant change of 0.006. The p values are bigger than the critical value ($p < 0.05$) meaning that the impact of supply chain management practices is statistically significant on performance of public universities at 5% confidence level. From the above findings, though all the SCM practices have strong positive relationship in most cases with performance, the results are not statistically significant at 5% confidence level.

These findings contradict those from the study done by Amollo (2016) on SCM practices and supply chain performance of private universities in Kenya which concluded that there was a near perfect fit in the relationship that exists between SCM practices and performance

Table 4.4 Regression Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error			
(Constant)	2.037	1.162		1.754	.101
Use of supply chain IT	.308	.127	.404	2.429	.029
Information sharing	.444	.158	.520	2.807	.014
Strategic supplier Partnerships	.257	.155	.295	1.654	.120
Customer relationships Management	.263	.159	.294	1.653	.121
Outsourcing	.159	.212	.160	.749	.466

Source: Research Data (2017)

a. Dependent Variable:

According to the table 4.8 generated by SPSS, the equation ($Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \beta_5X_5 + \varepsilon$) becomes:

$$Y = 2.037 + 0.308 X_1 + 0.444 X_2 + 0.257 X_3 + 0.263 X_4 + 0.159 X_5$$

The value of the intercept (B_0) indicates that the overall level of organizational performance when all the explanatory variables are zero is 2.037. This implies that were public universities withdraws from their existing supply chain management practices, then the current level of performance will be 20.37%. Similarly, the adoption of the supply chain IT, information sharing, strategic supplier partnerships, customer

relationships and outsourcing will result in an increase of the universities organizational performance by 30.8%, 44.4%, 25.7%, 47.5% and 15.9% respectively. Hence the findings suggest that the most dominant supply chain management practice that affects the organizational performance most is information sharing while outsourcing was found to have the least effect. The finding corresponds to literature review which depicts that a progressive connection exists amongst supply chain management practices and organizational performance. For instance, a positive relationship was found to exist amongst SCM practices with performance on research done by Kazi (2012). His research focused on SCM practices and performance of Kenya medical supplies Agency. Amollo (2016) also carried out a study on SCM practices and SC performance of private institutions of higher learning in Kenya and the findings showed positive relationships between the SCM practices and performance.

4.6 Supply Chain Challenges

In regard to challenges facing implementation of SCM practices at public universities in Kenya, the researcher sought to define the magnitude to which various challenges affects implementation of supply chain management practices. Respondents were required to rate the challenges on Likert scale of 1-5 where **5-** Very Large extent, **4-** Large extent, **3-** Moderate extent, **2-** Little extent and **1-** No extent.

The findings is as presented below

Table 4.5. Descriptive Statistics for challenges in supply chain practice implementation

Challenges	Mean	ST. Deviation
High cost associated with SCM practice implementation	4.25	.78640
Absence of top managing support and commitment	4.20	.89443
Deficiency training and sensitization of SCM practices	4.10	.85224
Resistance to implementation from procurement staff and suppliers	4.05	.75915
Ineffective communication of the vision and plan for SCM	3.90	.64072
Failing to tie the supply chain activities with specific deliverables	3.85	.48936
Existence of inadequate information systems linkages	3.8	.69585
Existing conflicts amongst supply chain partners	3.80	.89443
Changing organization culture during implementation	3.65	.48936
Inadequate supply chain performance measures	3.55	.68633

Source: Research Data (2017)

In regard to the challenges faced by public universities in implementation of supply chain management practices, the study found out that the challenges affected implementation to an average mean of 3.915 implying to a moderate extent. Supply chain management practices implementation was affected by 40% of the challenges to a large extent by the high cost associated with SCM practice implementation (4.25), Lack of top management support and commitment (4.20), Lack of training and sensitization of SCM practices on procurement officials (4.10) and resistance to implementation from procurement staff and suppliers (4.05).Majority of the respondents agreed that the remaining challenges

representing 60% affected SCM practice implementation to a moderate extent. Ineffective communication of the vision and plan for SCM (3.90), failing to tie the supply chain activities with specific deliverables(3.85) ,existence of inadequate information systems linkages within the supply chain(3.80), existing conflicts amongst supply chain partners(3.80), changing organization culture during implementation(3.65) and inadequate supply chain performance measures(3.55) affected implementation to moderate extent.

CHAPTER FIVE : SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

The drive of the study existed to explore the effects of supply chain management practices on organizational performance of public institutions of higher learning in Kenya, extent of adoption of supply chain management practices (outsourcing, information sharing, use of supply chain IT, customer relationship management and strategic supplier partnerships) and the challenges of faced during implementation of supply chain management practices. Therefore the section entails the summary of research discoveries, the conclusions reached as well as the recommendations that were suggested as per the research findings to facilitate possible action. Further research suggestions are also discussed.

5.2 Summary of Findings

In regard to the magnitude to which various supply chain management practices has been implemented at public universities, outsourcing, information sharing ,planned supplier partnerships, customer relations management and use of supply chains IT were considered and the respondents were asked to rate on the extent of adoption.

An overall mean of 4.06 registered indicating that supply chain management practices at public universities have been implemented to a large extent. Strategic supplier partnerships had a mean of lower moderate mean implying that it has been implemented to a moderate extent at public universities in Kenya. The significant standard deviations indicate that the responses were not clustered around the mean but were widely highly

dispersed from the mean. Use of supply chain technology and customer relationships practices recorded the highest deviation while outsourcing recorded the least with higher mean. The significant standard deviations indicate that the responses were not clustered around the mean but were widely highly dispersed from the mean

On how various study independent variables were linked to organizational performance, the findings showed a positive associations amongst supply chain practices and organizational performances of public universities in Kenya with a resulting equation as

$$Y = 2.037 + 0.308 X_1 + 0.444 X_2 + 0.257 X_3 + 0.475 X_4 + 0.159 X_5$$

This regression equation explains that when all variables are held at zero (constant), the value of supply chain performance would be at 2.037. However, when all other factors are held constant, a component change in all variables leads to an increase in organizational performance coefficients of respective practices.

The research also found a progressive significance relation amongst organizational performance and use of supply chain IT and information sharing with $p=0.029$ and 0.014 respectively meaning use of supply chain information technology and information sharing practices are suitable predictors of dependent variable or organizational performance in public universities in Kenya hence for every unit increase in measure of use of supply chain IT and information sharing, the measure of performance increases by variables coefficients respectively.

Findings also explored existing correlation between SCM practices and performance of public universities with use of use of SC information technologies and sharing of information having a positive correlation. All the other variables showed a positive correlation with organizational performance of public universities in Kenya .However customer relationship

management registered a negative correlation and a significance value of 0.069 meaning change in customer relationships management practices has negative impact on organizational performance.

In regard to challenges facing implementation of SCM practices at public universities in Kenya, the researchers sought to determine the challenges faced during implementation stage, the study found out that the challenges affected implementation to an average mean of 3.915 implying to a moderate extent. Supply chain management practices implementation was affected by the challenges to a large extent by the high cost associated with SCM practice implementation, Absence of top administration backing and commitment, Nonexistence of training and sensitization of SCM practices on procurement officials and resistance to implementation from procurement staff and suppliers .Majority of the respondents agreed that the other challenges affected SCM practice implementation to a moderate extent. Ineffective communication of the vision and plan for SCM, failing to tie the supply chain activities with specific deliverables, existence of inadequate information systems linkages within the supply chain, existing conflicts amongst supply chain partners, changing organization culture during implementation and inadequate supply chain performance measures affected implementation to moderate extent.

5.3 Conclusions

The study concludes about introduction of supply chain management practices as having a high significance on betterment of performance hence all universities should put in place measures to ensure supply chain management practices are fully adopted. From the research results it can be determined that supply chain management practices affected

organizational performance to a large extent. The research also concludes that supply chain management practices have been adopted and faced challenges to a moderate extent. The research also concludes that high cost of implementation, lack of management support and commitment, resistance from procurement staff and suppliers were the most faced challenges. The study concludes that the challenges are not beyond any manageable levels and strategies that are well placed could mitigate the challenges.

5.4 Recommendations

The main goal of SCM practices in a company is to offer effectual managing of inbound and outbound activities associated with the dissemination of information along supply chain. The study established that the use supply chain management practices can help enhance efficiency and reduce operating cost, which is critical in achieving organization success. The study recommends that the organizations should develop and design supply chain management practices and control systems depending on their size to ensure that all the needs of the organization are adequately addressed. The research established that the benefits of supply chain management practices outweigh the challenges and hence should be utilised to optimize supply chain operations and rescue cost of operations.

The study recommends that universities should hire competent procurement staff to be entrusted in implementation, management and measurement of the supply chain management practices. The employees should receive training and motivation to reduce the margin of error and chances of mismanagement or sabotaging of SCM practices implementations. This will eventually elevate the credibility of supply chain information captured and aid optimal decision making in public universities which will translate to increased flexibility, customer satisfaction and reduced cost of operations. The study

further recommends that there should be laid down policies on supply chain management practices and practice implementation to avoid malice and malpractices that would lead to unsuccessful adoption of supply chain management practices within public universities

5.5 Limitations of the study

A number of difficulties faced researcher during the course of this research. One is the challenge of time as well as resources which limited the collection of information particularly where the respondents delayed in filling the questionnaire and travelling expenses for collection of the filled questionnaires.

University information is considered to be proprietary and confidential. This resulted to the respondents showing some level of reluctance in sharing the information because of the fear of intimidation or the possibility of using the information to create an image that is negative for the particular institution. The challenge was handled by the researcher by way of assurance of utmost confidentiality and that the information was only going to be used for purposes of academics. This study was being undertaken within a limited period of time which meant that feedback from respondents in universities was required in within this shorter period. If adequate time was allocated, there could have been a higher response rate.

Lastly, the results of this research largely relied on the respondent's opinion. There was no direct control of accuracy of information on the part of the researchers. This challenge was countered through seeking clarifications from the respondents on any ambiguities found on the responses.

5.6 Suggestion for Further Studies

This study concentrated efforts on establishing impacts of SCM practice on institutional performance of public universities in Kenya. The researcher also explored the extent at which SCM practices have been implemented and the challenges faced by public universities during implementation of SCM practices. The study was however not but serves as a basis for more research to conduct on more variable to come up with more information concerning the same. The study focused on organizational performance without analyzing quantitative details of the performance, future research can be done to analyze quantitative aspect of performance such as changes in profits among others.

This study suggests that other researchers should undertake to the research on link amongst SCM practices on SC performance of public universities and the benefits or challenges the accompanying supply management practices on supply chain performance. The research never considered the possible solutions to the challenges facing the application of SCM practices at public universities in Kenya hence further study needs to be instituted to investigate the possible solution to the challenges faced by public universities in the implementation of supply chain management practices

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APPENDIX 1: RESEARCH QUESTIONNAIRE

This questionnaire has been designed to collect information on supply chain management practices and organizational performance of public universities in Kenya. Please read carefully and answer the questions as honestly as possible. The information gathered will be used purely for the purpose of academic research and will be treated with utmost confidence.

Instructions

1. Tick appropriately in the box or fill in the space provided.
2. Feel free to give further relevant information to the research.

PART A: BIOGRAPHIC INFORMATION

1. Gender:

Male () Female ()

2. Your age bracket

20-25 years () 26-30 years () 31-35 years ()

Above 40years ()

3. Highest level of education

College Level () University Level () Masters Level ()

4. How long have you been working with the University?

1-5 years () 6-10 years () 11-15 years () 16-20 years () above 20years ()

PART B: SUPPLY CHAIN MANAGEMENT PRACTICES IMPLEMENTED AT YOUR UNIVERSITY

5. To what extent has the following practices been implemented at the university?

Use **1-** Very low extent, **2-**Low extent, **3-**Moderate extent, **4-** Great extent, **5-** Very great extent

SCM PRACTICES	1	2	3	4	5
<p>Outsourcing e.g. outsourcing of services such as Security ,cleaning, catering or any other</p>					
<p>Information sharing With customers ,suppliers and all levels of management or campuses through use of supply chain technologies such as EDI and ERP</p>					
<p>Use of ICT Using information technologies in managing and executing process of acquiring inputs, transforming them and distributing final goods or services to customers</p>					
<p>Strategic supplier partnerships Ensuring there is a close relationship with suppliers and also platforms to solve issues or conflicts arising between the two. Having clear and compatible communication channels</p>					

Customer relationship management Putting in place mechanism to address customer complaints and ensuring their service delivery feedback is integrated in decision making processes					
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PART B: SUPPLY CHAIN MANAGEMENT PRACTICES AND ORGANIZATIONAL PERFORMANCE

6.) Indicate using a tick (√) to what extent do you agree that supply chain management practices below have influenced the organizational performance of the university. Rate using a scale of **1-5**, where: **1** strongly disagree, **2** Disagree, **3** neither agree nor disagree, **4** agree, **5** strongly agree

SCM PRACTICES	5	4	3	2	1
Use of Supply Chain IT					
IT system throughout the supply chain is automated					
Ordering system from major customer is IT enabled and automated					
IT- based automated ordering systems are used to send purchase orders to major suppliers					
The University uses intranet and extranet in its supply chain functions.					
Use Electronic data interchange (EDI) to manage supply chain management processes.					
Information sharing					

Formal information sharing about new product launch with key suppliers					
SC partners being informed in advance of changing needs					
SC partners sharing information with the organization that helps establishment of business planning					
SC partners sharing proprietary information with university					
sharing supply chain knowledge of core business processes with the organization					
Supplier strategic partnerships					
Key suppliers are included in planning and goal setting activities					
Including Key suppliers in continuous improvement programs					
Regularly solving problems jointly with Suppliers and negotiating for long term contracts					
Creating compatible information system with key suppliers					
Closely monitoring Supplier performance for the basis for future business					
Customer relationship management					
involving customers in demand forecasting and product development					
Inspection and monitoring the quality of materials and products from suppliers					
Customer and supplies feedback is obtained on services adequacy through customer and supplier management					

The university participates in the customers marketing					
Outsourcing					
There is a monitoring mechanism for quality of outsourced services by the organization.					
There is existence of an outsourcing policy that the organization adheres to.					
Services that are not core to the organization are outsourced.					

PART C: ORGANIZATIONAL PERFORMANCE

7. Below are statements describing on Performance. Kindly indicated the level to which you agree with them in accordance to the following scale:1-Not at all, 2-low extent, 3-moderate extent, 4-large extent, 5-very large extent

No.	Statement	1	2	3	4	5
1	There is an increased level of flexibility that influences the operations					
2	There is a reductions of wastes associated with the operations of the service delivery					
3	There is increased information sharing with other department in order to enhance operational efficiency					
4	There is a decline of overall administrations costs					
5	There is increased speed with which decision making can be undertaken within the firm					
6	There is high efficiency of assets utilization					
7	There is increased creative initiatives among employees					
8	There is high response to dynamic customer needs					
9	There is an accurate demand forecasting of items and supplies being required by different departments in the firm					
10	There is increased customer satisfaction levels					

PART D: CHALLENGES

10.) Please indicate the extent to which each of the following supply chain management challenges are faced during implementation of SCM practices by your University?

Use a Likert scale of= **1.**No extent **2.**small extent**3.**Medium extent **4.**large extent **5.**Very large extent

	Challenges	(1)	(2)	(3)	(4)	(5)
I	Changing organization culture while implementing supply chain practices is difficult					
ii	Lack of top management support and commitment					
iii	Lack of training and sensitization of SCM practices on procurement officials					
iv	Existing conflicts amongst supply chain partners					
v	Failing to tie the supply chain activities with specific deliverables					
vi	Ineffective communication of the vision and plan for SCM practices implementation in the workforce					
vii	High cost associated with SCM practice implementation					
viii	Inadequate supply chain performance measures					
ix	Existence of inadequate information systems linkages within the supply chain					
x	Resistance to implementation from procurement staff and suppliers					

I sincerely appreciate the time you spared to complete this questionnaire

APENDIX 2.

ACCREDITED PUBLIC UNIVERSITIES IN KENYA – MARCH 2017

ACCREDITED UNIVERSITIES	YEAR OF ESTABLISHMENT	YEAR OF AWARD OF CHARTER
Public Chartered Universities In Kenya		
1. Chuka University	2007	2013
2. DedanKimathi University of Technology	2007	2012
3. Egerton University (EU)	1987	2013
4. University of Embu	2011	2016
5. JaramogiOgingaOdinga University of Science and Technology	2009	2013
6. Jomo Kenyatta University of Agriculture and Technology (JKUAT)	1994	2013
7. Karatina University	2010	2013
8. Kenyatta University (KU)	1985	2013
9. Kibabii University	2011	2015
10. Kirinyaga University	2011	2016
11. Kisii University	2007	2013
12. Laikipia University	2009	2013
13. Maasai Mara University	2008	2013
14. Machakos University	2011	2016

15. Maseno University	2001	2013
16. MasindeMuliro University of Science and Technology (MMUST)	2007	2013
17. Meru University of Science and Technology	2008	2013
18. Moi University (MU)	1984	2013
19. Multimedia University of Kenya	2008	2013
20. Murang'a University of Technology	2011	2013
21. Pwani University	2007	2013
22. Rongo University	2011	2016
23. South Eastern Kenya University	2008	2013
24. TaitaTaveta University	2011	2016
25. Technical University of Kenya	2007	2013
26. Technical University of Mombasa	2007	2013
27. The Co-operative University of Kenya	2011	2016
28. University of Eldoret	2010	2013
29. University of Kabianga	2009	2013
30. University of Nairobi (UoN)	1970	2013
31. Kirinyaga university college	2011	2016

Source: Commission for University Education (CUE), 2017