

**INFLUENCE OF STRATEGIC PROCUREMENT  
PRACTICES ON PERFORMANCE OF PUBLIC WATER  
AND SEWERAGE COMPANIES IN KENYA**

**REBECCA KAVUTHA MUTIA**

**DOCTOR OF PHILOSOPHY**

**(Supply Chain Management)**

**JOMO KENYATTA UNIVERSITY**

**OF**

**AGRICULTURE AND TECHNOLOGY**

**2022**

**Influence of Strategic Procurement Practices on Performance of  
Public Water and Sewerage Companies in Kenya**

**Rebecca Kavutha Mutia**

**A Thesis Submitted in Partial Fulfillment of the Requirements for  
the Degree of Doctor of Philosophy in Supply Chain Management of  
the Jomo Kenyatta University of Agriculture and Technology**

**2022**

## DECLARATION

This thesis is my original work and has not been presented for a degree in any other University

Signature ..... Date .....

**Rebecca kavutha Mutia**

This thesis has been submitted for examination with our approval as University supervisors.

Signature ..... Date .....

**Prof. Willy Muturi, PhD**

**JKUAT, Kenya**

Signature ..... Date .....

**Dr John Achuora, PhD**

**JKUAT, Kenya**

## **DEDICATION**

To my family members and friends, I dedicate this research work to you.

## **ACKNOWLEDGEMENT**

As an adage states, unless we agree we cannot walk together. Thank you, my supervisors, Prof Willy Muturi and Dr. John Achuora, your guidance and assistance eased the research encounter. Be blessed. To my classmates you amplified our team cohesiveness. JKUAT Town Campus Management your doors were open whenever I knocked.

## TABLE OF CONTENTS

<b>DECLARATION.....</b>	<b>II</b>
<b>DEDICATION.....</b>	<b>III</b>
<b>ACKNOWLEDGEMENT .....</b>	<b>IV</b>
<b>TABLE OF CONTENTS.....</b>	<b>V</b>
<b>LIST OF TABLES .....</b>	<b>XIII</b>
<b>LIST OF FIGURES .....</b>	<b>XVI</b>
<b>LIST OF APPENDICES .....</b>	<b>XVII</b>
<b>OPERATIONAL DEFINITION OF TERMS.....</b>	<b>XIX</b>
<b>ABSTRACT .....</b>	<b>XX</b>
<b>CHAPTER ONE .....</b>	<b>1</b>
<b>INTRODUCTION.....</b>	<b>1</b>
1.1 Background of the Study.....	1
1.1.1 Global Perspective of Strategic Procurement Practices and Performance..	3
1.1.2 Regional Perspective of Strategic Procurement Practices and Performance .....	4
1.1.3 Local perspective of Strategic Procurement Practices and Performance....	5
1.1.4 Public Water Sector in Kenya .....	6
1.2 Statement of the Problem .....	7
1.3 Research Objectives .....	9

1.3.1 General Objective.....	9
1.3.2 Specific Objectives.....	9
1.4 Research Hypotheses .....	9
1.5 Justification of the Study.....	10
1.6 Scope of the Study .....	11
1.7 Limitations of the Study.....	11
<b>CHAPTER TWO .....</b>	<b>13</b>
<b>LITERATURE REVIEW.....</b>	<b>13</b>
2.1 Introduction.....	13
2.2 Theoretical Review .....	13
2.2.1 Strategic Choice Theory.....	13
2.2.2 Stakeholders Theory.....	14
2.2.3 Kirkpatrick Model.....	15
2.2.4 The Resource-based View Theory .....	16
2.2.5 Technology, Organization and Environment Model.....	18
2.3 Conceptual Framework .....	19
2.3.1 Strategic Sourcing .....	20
2.3.2 Strategic Contract Management.....	22
2.3.3 Strategic Staff Training .....	23

2.3.4 Strategic Procurement Planning .....	24
2.3.5 Information Technology .....	25
2.3.6 Performance .....	26
2.4 Empirical Review .....	27
2.4.1 Strategic Sourcing and Performance .....	27
2.4.2 Strategic Contract Management and Performance.....	28
2.4.3 Strategic Staff Training and Performance.....	30
2.4.4 Strategic Procurement Planning and Performance.....	32
2.4.5 Information Technology and Performance .....	33
2.5 Critique of Existing Literature .....	34
2.6 Summary of the Literature .....	35
2.7 Research Gaps .....	36
<b>CHAPTER THREE .....</b>	<b>38</b>
<b>RESEARCH METHODOLOGY .....</b>	<b>38</b>
3.1 Introduction .....	38
3.2 Research Philosophy .....	38
3.3 Research Design.....	40
3.4 Target Population .....	41
3.5 Sample and Sampling Techniques .....	41



3.6 Data Collection Instruments.....	42
3.7 Pilot Testing .....	43
3.7.1 Validity of the Research Instrument .....	43
3.7.2 Reliability of the Research Instrument.....	43
3.8 Data Collection Procedure .....	44
3.9 Data Analysis and Presentation.....	44
3.9.1 Descriptive Statistics .....	44
3.9.2 Inferential Statistics.....	45
3.10 Regression Assumptions .....	47
3.10.1 Linearity Test .....	47
3.10.2 Normality Test .....	47
3.10.3 Multicollinearity.....	47
3.10.4 Homoscedasticity .....	48
3.10.5 Autocorrelation .....	48
<b>CHAPTER FOUR.....</b>	<b>49</b>
<b>FINDINGS AND DISCUSSIONS.....</b>	<b>49</b>
4.1 Introduction .....	49
4.2 Response Rate .....	49
4.3 Pilot Analysis .....	49

4.3.1 Reliability Analysis .....	50
4.3.2 Validity Analysis.....	50
4.4 Background Information .....	51
4.4.1 Gender .....	51
4.4.2 Highest Level of Education.....	52
4.4.3 Age .....	53
4.4.4 Period Served in the Current Position.....	53
4.4.5 Professional Body Registration.....	54
4.4.6 Professional Body Membership .....	54
4.4.7 Professional Body Membership Status .....	55
4.5 Descriptive Statistics.....	55
4.5.1 Descriptive Statistics on Strategic Sourcing .....	56
4.5.2 Descriptive Statistics on Strategic Contract Management .....	57
4.5.3 Descriptive Statistics on Strategic Staff Training .....	59
4.5.4 Descriptive Statistics on Strategic Procurement Planning .....	61
4.5.5 Descriptive Statistics on Information Technology.....	63
4.5.6 Descriptive Statistics on Water Company Performance .....	65
4.5.7 Trend Analysis on Water Company Performance .....	65
4.6 Exploratory Factor Analysis .....	66

4.6.1 Exploratory Factor Analysis on Strategic Sourcing.....	67
4.6.2 Exploratory Factor analysis on Strategic Contract Management.....	67
4.6.3 Exploratory Factor Analysis on Strategic Staff Training.....	68
4.6.4 Exploratory Factor Analysis on Strategic Procurement Planning.....	69
4.6.5 Exploratory Factor Analysis on Information Technology .....	69
4.6.6 Exploratory Factor Analysis on Performance .....	70
4.7 Regression Diagnostic Tests .....	70
4.7.1 Linearity Test .....	70
4.7.2 Normality Test .....	71
4.7.3 Multicollinearity.....	72
4.7.4 Heteroscedasticity .....	73
4.7.5 Serial Correlation .....	73
4.8 Correlation Analysis.....	73
4.9 Hypothesis Testing.....	75
4.9.1 Strategic Sourcing and Performance of Public Water and Sewerage Companies in Kenya .....	75
4.9.2 Strategic Contract Management and Performance of Public Water and Sewerage Companies in Kenya.....	77
4.9.3 Strategic Staff Training and Performance of Public Water and Sewerage Companies in Kenya .....	78

4.9.4 Strategic Procurement Planning and Performance of Public Water and Sewerage Companies in Kenya.....	80
4.9.5 Influence of Strategic Procurement Practices on Performance of Public Water and Sewerage Companies in Kenya .....	82
4.10 Moderating Effect of Information Technology on the Relationship between Strategic Procurement Practices and Performance of Public Water and Sewerage Companies in Kenya.....	85
4.10.1 Moderating Effect of Information Technology on the Relationship between Strategic Sourcing and Performance of Public Water and Sewerage Companies in Kenya .....	86
4.10.2 Moderating Effect of Information Technology on the Relationship between Strategic Contract Management and Performance of Public Water and Sewerage Companies in Kenya .....	88
4.10.3 Moderating Effect of Information Technology on the Relationship between Strategic Staff Training and Performance of Public Water and Sewerage Companies in Kenya .....	91
4.10.4 Moderating Effect of Information Technology on the Relationship between Strategic Procurement Planning and Performance of Public Water and Sewerage Companies in Kenya .....	93
4.10.5 Multivariate Analysis on the Moderating effect of Information Technology on the Relationship between Strategic Procurement Practices and Performance of Public Water and Sewerage Companies in Kenya....	95
4.10.6 Moderating Effect Information Technology on the Relationship between Strategic Procurement Practices and Performance of Public Water and Sewerage Companies in Kenya .....	98
4.10.7 Optimal Conceptual Framework .....	102

<b>CHAPTER FIVE.....</b>	<b>103</b>
<b>SUMMARY, CONCLUSION AND RECOMMENDATIONS.....</b>	<b>103</b>
5.1 Introduction.....	103
5.2 Summary of Findings.....	103
5.2.1 Strategic Sourcing and Performance.....	103
5.2.2 Strategic Contract Management and Performance.....	104
5.2.3 Strategic Staff Training and Performance.....	105
5.2.4 Strategic Procurement Planning and Performance.....	105
5.2.5 Information Technology and Performance.....	106
5.3 Conclusion.....	107
5.4 Recommendations.....	108
5.4.1 Strategic Sourcing.....	108
5.4.2 Strategic Contract Management.....	108
5.4.3 Strategic Staff Training.....	108
5.4.4 Strategic Procurement Planning.....	109
5.4.5 Information Technology.....	109
5.5 Suggestion of Further Studies.....	109
<b>REFERRENCES .....</b>	<b>110</b>
<b>APPENDICES .....</b>	<b>120</b>

## LIST OF TABLES

<b>Table 3.1:</b> Target Population.....	41
<b>Table 3.2:</b> Sample Size.....	42
<b>Table 3.3:</b> Cronbach’s Coefficient .....	44
<b>Table 3.4:</b> Summary of Variables Measurement, Analysis and Interpretation .....	46
<b>Table 4.1:</b> Response Rate .....	49
<b>Table 4.2:</b> Reliability Analysis.....	50
<b>Table 4.3:</b> KMO and Bartlett's Test .....	51
<b>Table 4.4:</b> Highest Level of Education .....	52
<b>Table 4.5:</b> Period Served in the Current Position.....	54
<b>Table 4.6:</b> Professional Body Membership .....	55
<b>Table 4.7:</b> Descriptive Statistics on Strategic Sourcing .....	57
<b>Table 4.8:</b> Descriptive Statistics on Strategic Contract Management.....	59
<b>Table 4.9:</b> Descriptive Statistics on Strategic Staff Training .....	61
<b>Table 4.10:</b> Descriptive Statistics on Strategic Procurement Planning.....	63
<b>Table 4.11:</b> Descriptive Statistics on Information Technology .....	64
<b>Table 4.12:</b> Descriptive Statistics on Water Company Performance .....	65
<b>Table 4.13:</b> Trend Analysis on Water Company Performance .....	66
<b>Table 4.14:</b> Exploratory Factor Analysis on Strategic Sourcing.....	67

<b>Table 4.15:</b> Exploratory Factor Analysis on Strategic Contract Management .....	68
<b>Table 4.16:</b> Exploratory Factor Analysis on Strategic Staff Training.....	68
<b>Table 4.17:</b> Exploratory Factor Analysis on Strategic Procurement Planning .....	69
<b>Table 4.18:</b> Exploratory Factor Analysis on Information Technology .....	69
<b>Table 4.19:</b> Exploratory Factor Analysis on Performance .....	70
<b>Table 4.20:</b> Multicollinearity.....	72
<b>Table 4.21:</b> Heteroscedasticity .....	73
<b>Table 4.22:</b> Serial Correlation .....	73
<b>Table 4.23:</b> Correlation Analysis .....	74
<b>Table 4.24:</b> Regression Analysis on Influence of Strategic Sourcing and Performance of Public Water and Sewerage Companies in Kenya.....	76
<b>Table 4.25:</b> Regression Analysis on Influence of Strategic Contract Management and Performance of Public Water and Sewerage Companies in Kenya.....	78
<b>Table 4.26:</b> Regression Analysis on Influence of Strategic Staff Training and Performance of Public Water and Sewerage Companies in Kenya.....	80
<b>Table 4.27:</b> Regression Analysis on Influence of Strategic Procurement Planning and Performance of Public Water Companies in Kenya .....	82
<b>Table 4.28:</b> Influence of Strategic Procurement Practices on Performance of Public Water and Sewerage Companies in Kenya.....	85
<b>Table 4.29:</b> Moderating Effect of Information Technology on the Relationship between Strategic Sourcing and Performance of Public Water and Sewerage Companies in Kenya .....	88

<b>Table 4.30:</b> Moderating Effect of Information Technology on the Relationship between Strategic Contract Management on Performance of Public Water and Sewerage Companies in Kenya.....	90
<b>Table 4.31:</b> Moderating Effect of Information Technology on the Relationship between Strategic Staff Training and Performance of Public Water and Sewerage Companies in Kenya .....	93
<b>Table 4.32:</b> Moderating Effect of Information Technology on the Relationship between Strategic Procurement Planning and Performance of Public Water and Sewerage Companies in Kenya.....	95
<b>Table 4.33:</b> Multivariate Analysis on the Moderating effect of Information Technology on the Relationship between Strategic Procurement Practices and Performance of Public Water and Sewerage Companies in Kenya.....	97
<b>Table 4.34:</b> Moderating Effect of Information Technology on the Relationship between Strategic Procurement Practices and Performance of Public Water and Sewerage Companies in Kenya.....	101



## LIST OF FIGURES

<b>Figure 2.1: Conceptual Framework</b> .....	20
<b>Figure 4.1: Gender</b> .....	52
<b>Figure 4.2: Age</b> .....	53
<b>Figure 4.3: Professional Body Registration</b> .....	54
<b>Figure 4.4: Professional Body Membership Status</b> .....	55
<b>Figure 4.5: Linearity Test</b> .....	71
<b>Figure 4.6: Normality Test</b> .....	72
<b>Figure 4.7: Optimal Conceptual Framework</b> .....	102

## LIST OF APPENDICES

<b>Appendix I:</b> Letter of Introduction.....	120
<b>Appendix II:</b> Questionnaire .....	121
<b>Appendix III:</b> List of Water Service Providers in Kenya.....	127

## **LIST OF ABBREVIATIONS AND ACRONYMS**

<b>BSC</b>	Balanced Score Card
<b>CIPS</b>	Chartered Institute of Purchasing and Supply
<b>CRM</b>	Customer Relationship Management
<b>EPC</b>	Engineering-Procure-Construction
<b>ERP</b>	Enterprise Resource Planning
<b>ICT</b>	Information Communication Technology
<b>IT</b>	Information Technology
<b>NACOSTI</b>	National Commission for Science, Technology and Innovation
<b>PSM</b>	purchasing and supply management
<b>PWC</b>	Price Water Coopers
<b>RBV</b>	The resource-based view
<b>RFID</b>	Radio Frequency Identification
<b>SC</b>	Supply Chain
<b>SCM</b>	Supply Chain Management
<b>SPSS</b>	Statistical Packages for Social Science
<b>SRM</b>	Supply Relationship Management
<b>TOE</b>	Technology, Organization and Environment Model
<b>UK</b>	United Kingdom
<b>UNEP</b>	United Nations Environmental Programme

## OPERATIONAL DEFINITION OF TERMS

<b>Information Technology</b>		Adoption of implementation of computerized procurements process. It reduces paper works, aids in evaluation and enhances comparative analysis between different service providers (Kakwezi, 2012).
<b>Performance</b>		This is the total contribution of procurement input process, measured through achievement of organization goals and objectives. In procurement it was evaluated through reliable supply of water, affordable services, quality services and adequate services (Smee, 2014).
<b>Strategic Contract Management</b>		These are contracts variations procedures geared towards successful and efficient implementation of contractual agreements. It commences with bids evaluations and terminates with payment (Kakwezi, 2012).
<b>Strategic Procurement Planning</b>		Organization procurement resources allocation procedures, evaluation and approvals strategies (Apiyo & Mburu, 2014).
<b>Strategic Procurement practice</b>		Forecasted and coordinated management of procurement needs within an organization (Apiyo & Mburu, 2014)
<b>Strategic Sourcing</b>		Coordinated sourcing of goods and services through prior supplier selection, evaluation and development criterion (Chiang, Hillmer & Suresh, 2012).
<b>Strategic Staff Training</b>		Development of procurement staffs' skills through capacity building programs (Peter, 2014)

## ABSTRACT

The current study sought to establish the influence of strategic procurement practices on performance in water sector in Kenya. Specifically, the study aimed at establishing the influence of strategic sourcing, strategic contract management, staff training, strategic procurement planning and to establish the moderating effect of information technology on the relationship between strategic procurement practices and performance of public water companies in Kenya. The study was based on strategic choice theory, stakeholder's theory, Bloom's taxonomy of learning theory, resources-based view theory and technology, organization and environment model. It was anchored on positivism research philosophy and descriptive research design. The target population comprised of Procurement Managers, Finance Managers and CEOs of 79 water companies in Kenya. Simple random sampling was used to select 150 respondents from a target of 237. Primary data was collected through use of questionnaires. The results of the analysis revealed existence of a high relationship between strategic procurement practices and performance of public water companies in Kenya ( $R= 0.858$ ) and that 73.6% on variations in the performance of public water companies can be accounted by strategic sourcing, strategic contract management, staff training and strategic procurement planning. Information technology was found to positively and significantly influence the relationship between strategic procurement practices and performances of public water companies in Kenya. The study further established that strategic sourcing, strategic contract management, staff training and strategic procurement planning positively and significantly influence performance of public water companies in Kenya as depicted by Beta values of 0.419, 0.175, 0.162 and 0.306 respectively. This implies that increase in one unit of each of the variables results to an increase in the performance levels with the respective beta values. It can be concluded that practices such as creation of collaborative business environment and creation of optimal cost allocation during procurement, leads to improved service delivery, reduction in sewerage and water spillage and has enhanced customer service provision and response time during complaints. Creation of harmonious delivery mechanism, supplier cooperation platforms, enhances provision of quality services, timely provision of services, reduction of water spillage, enhanced response to customers and have increased revenue from service provision. Training clarifies procurement policies and guidelines in an organization, it enhances employee's professional development, creates a culture of innovation and creativity and aids in preparation of annual training programs. Budgetary planning of procurement needs, continuous departmental needs and assessment, preparation of department goods utilization matrix and accounting for all procurement activities enhances provision of services by public water companies. Use reliable E-procurement software, E-tendering, and payment, coherency procurement information has enhanced the influence of strategic procurement practices on performance of public water companies in Kenya. It was recommended that there is need for public water companies to pursue collaborative business environment with their suppliers. There is need for public water companies in Kenya to enhance their contract management so as to achieve harmony on goods and services delivery, understanding of all stakeholders. Strategic training can be achieved through setting of training targets and mentorship programs. There is need

for public water companies to embrace strategic procurement planning this would aid in provision of quality services. There should be measures and mechanisms aimed at paperless tendering process so as to enhance delivery of quality goods and provision of reliable services.

## **CHAPTER ONE**

### **INTRODUCTION**

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

Procurement refers to process of acquiring goods and services for production process. They ought to be procured from rights sources, in expected quality and quantity, at competitive prices and on time (Dahwa, 2010). Procurements process is hierarchical from determination of quantities, qualities, budgetary allocation, competitive bidding, agreement signing, delivery of goods and services, receipt and utilization of goods and services. Procurement is undertaken to achieve procurement and non-procurement objectives. The former is focused on risk management, adherence to professional ethics and adherence to quality and quantity standards. The latter satisfies social, political and economic interest of heterogenous stakeholders (Karanja & Kiarie, 2015).

Successful procurement process is characterized by plan, execution, evaluate and internal controls. Non-functional of any of them would erode benefits associated with procurement process and distract organization from its vision and mission (Eyaa & Oluka, 2011). Procurement process is dependent on internal and external environment, internally an organization must maintain value for all procurement undertaken and externally it ought to create cordial relationship and respond optimally to dynamic business environment (Telgen, 2011). Fruitful interactions between internal and external environment is anchored on organization capacity to communication.

Strategic procurement is geared towards reduced supplier base, negotiations, communication and creation of healthy relationship with suppliers (Thai, 2011). This is in line with globalization trends, development of communication platforms and information communication and technology, improved logistics and procedures, sporadic competition, increased consumer awareness and demand, increased environmental awareness and demand for transparency and compliance with professional ethics and standards. These development calls for strategic alignment of

procurement activities so as to be in line with achievement of organization strategic goals. Failure to adopt strategic procurement leads to purchase with no defined task, unbalance in local and central purchasing, inefficient purchasing behaviour, and sole concentration on design and development (Queensland, 2017).

Strategic procurement is hierarchical in nature and comprises of seven main steps which are: internal needs assessment which is achieved through collection and consolidation of data to achieve desired objectives, suppliers market assessment through gathering and analysis of data amongst suppliers of raw materials, components, goods and services. Thirdly, the firm ought to collect supplier's information, this would aid in creation of pool of suppliers, this would aid in creation of alternative sources in case of failed to procure from expected suppliers. Fourthly, an organization should create an outsourcing strategy which would aid in development of healthy supplier partnership. Further, the firm should implement procurement strategy after which they should select winning suppliers upon successful negotiation. Finally, transaction strategy should be development and contractual supply chain improvement criterion should be developed and clarified (Eyaa & Oluka, 2011). Compliance with these seven steps would be based on organization capacity to train its procurement staffs, create strategic source of their goods and services, management contractual engagement with their suppliers and plan their procurement activities in logical flow.

Performance is the end result of resources which has been incorporated for its processing to achieve its objective (Upadhaya, Munir & Blount, 2014). There are alternative measures of its key amongst them being efficient utilization of its resources, speed of production, quality and quantity of production (Mchopa, Njau, Ruoja, Huka & Panga, 2014; Richard, Devinney, Yip & Johnson, 2009). In procurement its linked to heterogeneous attributes which include cost, lead time, quality, quantity and others. Peer organization performance evaluation would aid in benchmarking and alignment to organization goal. According to Mchopa et al. (2014) there are financial and non-financial organization performance measures. Financially, an organization must maximize its shareholders value through investment in positive net present value projects. Non- financial an organization can



satisfy its customers, increases its market share, alter its competitive advantage, lower operational costs and enhance customer's loyalty.

According to Maalu and Dosho (2016) efficient procurement process ought to yield high degree of customer satisfaction, minimize lead time, deliver quality and standard goods and services. In this study procurement performance was operationalized using reliable water supply, affordable water and sanitation services, affordable water and sanitation services, quality water and sanitation services and adequate water and sanitation services. Sustainable provision of quality water services would aid organization in achievement of its goals and objectives failure to which would trigger underperformance which may impact negatively on acquisition of supportive services for provision of water amongst locals.

### **1.1.1 Global Perspective of Strategic Procurement Practices and Performance**

In Australia, to achieve optimal benefits of procurement process, efficient resources allocations and management is adopted throughout (Thai, 2011). This was not the case before since traditionally state procurements had no performance evaluation criterion to the tune of about 44 percent (Smee, 2012). This was altered through introduction of qualitative and quantitative procurement evaluation procedures. The situation was reversed through development of procurement capability assessment criterion (Queensland, 2017). The model had its own performance evaluation criterion that linked all key players in procurement process. To enhance its success internal and external links were developed. According to Service Delivery and Performance Commission [SDPC] (2009) efficient and reliable procurement process ought to have internal capability which would aid in internal and external assessment of its performance as per organization procurement needs. The system should be easily evaluated and corrective measures adopted to alter its inferior performance.

Amongst members of European Union public procurement has an average expenditure of 19 percent of their total gross domestic product (GDP) (European Commission Evaluation Report, 2016). This percentage expenditure calls for adoption of sound management strategy which would minimize possibilities of resources wastage and optimize procurement performance. This can only be achieved

if their clearly stipulated procurement procedures to be adhered to. Failure, to harmonize state procurement procedures would deny individuals an opportunity to derive value for their money. Procurement performance in state corporations is always evaluated in line with organization capacity to meet stated objectives. Although, public goal of public corporations is to provide social services its procurement has identifiable measurable attributes, specific evaluation methodology and must align itself to contractual terms and conditions. Diversion possibilities from these should be minimized otherwise State Corporation would incur expenses whose value contribution would only remain in government documentation. This can be achieved through regulation of procurement practices worldwide.

According to Raymond (2008), although, in United States of America there are at least half a million professionally procurement professionals at most 10 percent have registered with professional bodies. This creates haven for procurement malpractices since there are no professional ethics or legal regulations governing conduct of non-registered procurement personnel. Consequently, public, state and private corporations are denied value for their money due to low levels of procurement policy compliance. Continued practice by non-regulated procurement professionals contravenes recommendations by (Hui et al., 2011) who argued that procurement compliance is significantly dependent on procurement training and adherence to professional bodies' guidelines regulating procurement activities.

### **1.1.2 Regional Perspective of Strategic Procurement Practices and Performance**

In Sub Saharan Africa, South Africa commenced amendments of its procurement process to align it to acceptable corporate governance practices, this was aimed at promoting social economic benefits. These reforms were precipitated by lack of harmonized government procurement process. Existing public procurement was characterized by organization culture defragmentation, total disregard for professional ethics and den of corruption (Kakwezi & Nyeko, 2010). This was in total disregard for provision by World Bank findings which argued in favour of harmonized procurement process in South Africa if government objectives were to be met. These deficiencies in procurement regulations were altered by changes in

procurement regulations and initiation of Preferential Procurement Policy Framework Act (PPFA) of 2000 which conceived public policy Supply Chain Management (SCM) (Ambe, 2012).

Rossi (2010) argued in favour of embracing ethical conduct so as to alleviate institutions from provision of degraded procurement services. This is in line with an audit of public procurement in Uganda, which argued that low levels of procurement employees hindered the government from accessing value for its money and provision of social and economic amenities (PPDA Audit Report, 2008). Indeed, Basheka and Mugabira, (2008) attributed professional procurement ethics erosion in public sector to low expatriate, this would only be altered through staff skills development and training. Embracement of professional is symbiotic to corporation capacity to train and development employee skills and use of data to manage procurement activities.

### **1.1.3 Local perspective of Strategic Procurement Practices and Performance**

Locally, public procurement has undergone metamorphosis geared towards development of efficient and reliable procurement entities. According to Obiero (2010) prior to this procurement performance evaluation criterion was non-existent due to lack of legal regulations, organization culture and degree of procurement professionalism. Although, public entities are non-profit making failure of them to have procurement performance criterion hinder them possibilities against benchmarking with external players. Further, culture of procurement data analysis has not been embraced in public entities due to sensitivity of some state operations (Rotich, 2011). Commencing 2003 Kenyan government adopted procurement guidelines to be adhered to by State Corporation. This was in line with its attempt to have strategic procurement direction (Obiero, 2010). These procurement guidelines have not only aided in achievement of government objectives but also controlled corruption and professional malpractices (Nyaboke et al., 2013). This have been possible through internal and external procurement performance evaluation standardization.

Public sector procurement is guided by Public Procurement Oversight Authority (PPOA) (Ochiri, 2011). Prior to these guidelines public procurement environment was characterized by massive malpractices such as corruption and ignorance of professional ethics and standards. Upon attainment of independence procurement practice in the public sector was reliant on supplier's manual authored in 1978 though it was updated by treasury on regular basis. Some notable acts which guide procurement in Kenya are Sale of goods Act, the law of contracts, government contracts Act. Even though, these laws were inexistent procurement malpractices were notable (Republic of Kenya, [RoK], 2010). This was aimed at deepening necessary procurement process which would guide public procurement and minimize professional misconduct. Ochiri (2011) argued that massive upgrading of procurement staff would tame skills gaps in the public sectors. This was in line with policy recommendations who argued that professional development would instill employee discipline and optimize achievement of procurement value. Mosoba (2012) and Aketch (2013) argued that public procurement practices needed alignment which was possible through development of procurement strategic plans which are anchored on achievement of superior of organization performance.

#### **1.1.4 Public Water Sector in Kenya**

Since independence to 1974 Ministry of Water and Irrigation was under Ministry of Agriculture. It was hived off in 1978 to 1992 when it was merged with Ministry of Land Reclamation and Regional Development. It was merged in 1998 to form Ministry of Water Resources which was later transferred and housed under the Ministry of Environmental and Natural Resources. Through presidential circular 1/2003; department of Irrigation and land Reclamation and Department of Water were hived off from Ministry of Environmental and Natural Resources to form Ministry of Water Resources and Management. It was renamed to Ministry of Water and Irrigation through presidential Circular No 1/2004.

An executive order no 2/2013 established Ministry of Environment Water and Natural Resources (MEWNR) aimed at protection, conservation, management and sustainable development of natural resources. This was altered in 2014 when the

government merged Ministries of Environment and Mineral Resources, Forestry, Wildlife, Water, Irrigation and Regional Development to form Ministry of Environment, Water and Natural Resources. This docket was split in April 2015 to form Ministry of Environment and Natural Resources and Ministry of Water and Irrigation. This was in line with role played by irrigation towards economic development. The ministry is tasked with provision of quality water services to all.

Although, strategic allocation of resources is anchored on policy of equitable and optimal distribution of scarce resources. Situation in the water sector in Kenya is skewed towards non- equitability. Water Company's performance are inhibited by its scarcity, quality, unplanned population changes, and sporadic climatic conditions. Due to this there is no guarantee on efficient water service provision globally and locally. According to Muniu (2010) approximately 1 and 3 billion have no access to clean water and quality sanitation respectively. This contravenes World Health Organization (2005) which called for joint efforts to alleviate water challenges prior to attainment of millennium development goals. Global statistics reveals that 60 percent of Africa population have challenges while accessing clean water and their rural-urban migration escalates the situation due to poor planning.

## **1.2 Statement of the Problem**

The Kenyan Vision 2030, acknowledges that there is scarcity of water, in fact renewable fresh water is 40 percent below United Nations recommendations. Consequently, mitigation strategies have been developed to alter the situation, though there are hindrances to project design adopted, their plan and implementation since there are characterized by procurement management malpractices (Green & Inman, 2007). There is need for provision of quality, reliable, adequate and water and sanitation services amongst all. The biggest threat to these initiatives has been procurement management practices which are characterized by misappropriation of public funds, unclear financing arrangement, inflations of bills of quantities, procurement contracts which totally disregards procurement policies, political influences and unethical practices (Kakwezi, 2012). This contravenes provisions by Obiero (2010) who argued that adherence to procurement ethics would maximize

benefits accrued from procurement process. Despite of this there no clarity on which strategic procurement practices contributes to organization performance of water companies.

Empirical examination on strategic procurement management on organization performance have been limited to specific attributes for example Chalton (2014) investigated challenges affecting implementation of procurement practices in State corporations in Kenya. Nyaboke et al., (2013) investigated the effect of public procurement policies on organization performance in Water sector. Mukopi and Iravo (2015) explored the effects of inventory management on procurement performance of sugar companies in Kenya. Its findings cannot be generalized in water sector since sugar is mostly grown in western region and procurement challenges associated with it may differ from water sector. Kiage (2013) investigated factors affecting procurement performance in ministry of Energy. The findings indicated that procurement performance was dependent on procurement strategies adopted by a firm. Karanja and Kiarie (2015) investigated the influence of procurement practices on performance of Guaranty Trust Bank Kenya Ltd. He reported that procurement planning and outsourcing had significant influence on procurement practices.

These studies were faced with conceptualization challenges since they either adopted procurement management independently or in pairs though none had examined moderating effect of information technology although, it may have the capacity to enhance or weaken the influence of strategic procurement management. Further, these studies drew their respondents from single sectors and none of them focused on water sector in Kenya, though those that focused on it did not explore strategic procurement management as conceptualized in the study. Hence existing empirical evidence cannot be generalized in public water sector. Thirdly, there is increased level of awareness more so with emergence of information technology which has amplified government information access thus it can be easier for individual evaluation on procurement ethical compliance. Consequently, the need to examine the influence of strategic procurement practices on performance and moderating effect of information technology of public water companies in Kenya.

### **1.3 Research Objectives**

#### **1.3.1 General Objective**

The general objective was to establish the influence of strategic procurement practices and performance of public water and sewerage companies in Kenya

#### **1.3.2 Specific Objectives**

The study was guided by the following fundamental specific objectives:

- i. To establish the influence of strategic sourcing on performance of public water and sewerage companies in Kenya
- ii. To determine the influence of strategic contract management on performance of public water and sewerage companies in Kenya
- iii. To analyze the influence of strategic staff training on performance of public water and sewerage companies in Kenya
- iv. To establish the influence of strategic procurement planning on performance of public water and sewerage companies in Kenya
- v. To establish the moderating effect of information technology on the relationship between strategic procurement practices and performance of public water and sewerage companies in Kenya.

### **1.4 Research Hypotheses**

The study was guided by the following research hypotheses:

**H<sub>a1</sub>:** There is no positive significant influence of strategic sourcing on performance of public water companies in Kenya

**H<sub>a2</sub>:** There is no positive significant influence of strategic contract management on performance of public water companies in Kenya

**H<sub>a3</sub>:** There is no positive significant influence of strategic staff training on performance of public water companies in Kenya

**H<sub>a4</sub>:** There is no positive significant influence of strategic procurement planning on performance of public water companies in Kenya

**H<sub>a5</sub>:** There is no significant moderating effect of information technology on the relationship between strategic procurement practices and performance of public water companies in Kenya.

### **1.5 Justification of the Study**

Documented evidence on the influence of strategic procurement management on organization performance may benefit scholars, policy makers and procurement regulators. Efficient procurement practices would enhance resources allocation, minimize its mismanagement and alter flawed procurement practices. Acquisition of quality goods and services would enhance provision of water and sanitation services country wide.

Empirical findings generated from this study may benefit government and water and sanitation policy makers. Government is expected to optimize its resources allocations. These findings may provide procurement evaluation tools which would minimize hindrances that minimizes likelihood of accessing quality water and sanitation services. These findings may sensitize policy makers on measures to adopt on water contract management, staffing skills, procurement planning and strategic sourcing strategies to adopt. From these findings any shortcoming with existing public and private procurement policies will be amended.

Water financing is provided by local and international foundations. There is need for them to be conversant with existing procurement policies. These policies would optimize value addition of procurement management adopted by respective authority. Through the findings an evaluation tool will be developed and alignment strategies recommended to maximize value addition of grants and funding.

Agreement and disagreement of study findings with existing empirical and theoretical evidence would trigger subsequent studies in future to authenticate them. Furthermore, there has been skewed examination on the direct effect of integrated



information technology on organization performance, they may be value addition through examination of its moderating effect.

### **1.6 Scope of the Study**

This study may limit its examination on strategic procurement practices of state water companies in Kenya. Secondly, direct link of strategic procurement practices and information technology moderation on performance may be investigated. Procurement manager, Finance Manager and Chief Executive Officers of 79 water state companies may constitute the target population. Theoretically, the study may be anchored on strategic choice theory, stakeholder's theory, resources-based theory, blooms taxonomy of learning and technology, environment model.

Although, there are alternative management practices that may be adopted empirical and theoretical literature is congruence that in procurement practices strategic sourcing, strategic contract management, strategic staff training and strategic procurement planning has the highest contribution on performance. Consequently, this may aid in their examination and also evaluate integrated information technology. Methodologically, the study scope may be limited to use of qualitative and quantitative data. Quantitative data may be analyzed through use of exploratory factor analysis, multiple regression and descriptive statistics.

### **1.7 Limitations of the Study**

Several limitations are encountered in the course of the study. Due to time and resources constraints the study was limited to 79 public water and sewerage companies. This census approach excluded any other institutions that is involved in provision of water and sewerage services. However, this allows subsequent studies to examine the effect strategic procurement process on organization performance.

The study initially received low response rate from questionnaire respondents. This may have hindered access to required information for data analysis. This was improved through actual visits to target public water and sewerage companies. Further, research assistants were recruited to aid in questionnaires distribution. In

addition, mailed questionnaires were limited to online and telephone conversations. Theoretically, the study was limited to strategic choice theory, relational contract theory, Kirkpartick model, resources-based view theory and technology, organization and environment model. Even though, each of them has weakness, their strengths surpassed them manifested through empirical literature.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

In this chapter, theoretical and empirical review was presented. Theoretical review presents its strengths, weakness and its relevance on the study. Empirical review shows nexus between procurement management and performance. Operationalization and conceptualization of variables was discussed. Research gaps, critique and summary of literature was presented.

#### **2.2 Theoretical Review**

In theoretical review, proponents, strengths, weakness and relevance in the study was presented. In this section, strategic choice theory, stakeholder's theory, resources-based view theory and Bloom's taxonomy of learning was discussed.

##### **2.2.1 Strategic Choice Theory**

Strategic choice theory was brought forth by (Jemison, 1981). It argues that there is need for harmonious interrelationship between all activities involved in procurement process (DeRond & Thietart, 2007). This optimizes allocation of resources within an organization and eliminate conflict amongst its departments. Through this theory an organization would be better placed to understand it internal and external operating environment. Owing to organization interrelationship, management choices are anchored to respond to prevailing conditions (Child, 1997).

Strategic choice is viewed as an ongoing process in which the planned management of uncertainty plays a crucial role. It focuses on decisions to be made in a particular planning situation, whatever their timescale and whatever their substance. It highlights the subtle judgements involved in agreeing how to handle the uncertainties which surround the decision to be addressed - whether these be technical, political or procedural. The approach is an incremental one, rather than one which looks towards an end product of a comprehensive strategy at some future point in time. This

principle is expressed through a framework known as a 'commitment package'. In this, an explicit balance is agreed between decisions to be made now and those to be left open until specified time horizons in the future. The approach is interactive, in the sense that it is designed not for use by experts in a backroom setting, but as a framework for communication and collaboration between people with different backgrounds and skills (Jemison, 1981).

The major strength of strategic choice theory is its ability to synchronize organization operational guidelines to be in tandem with its needs. Secondly, the theory enhances proactiveness and innovation on organization operational guidelines (Nollet et al., 2005). Incorporation of new procurement practices would create efficient production process and stabilize investment portfolio (Shook et al., 2009). The major drawback to this theory is its failure to provide choice criterion to optimize resources mix towards management need. This would erode value gain anticipated from strategic choice made in an organization.

The theory is relevant for the study since strategic sourcing is pegged on organization ability to interlink organization structure on decision making and optimize benefits to be accrued. Also, there is need for participatory decision making while selecting suppliers, evaluating them and developing them in public corporations. There is need to source resources from suppliers who optimizes allocation of government scarce resources and aid in achievement of government social and economic goal.

### **2.2.2 Stakeholders Theory**

Stakeholders' theory was brought forth by (Freeman, 1984). The theory was developed to show the relationship between internal and external stakeholders. It proposes that internal and external stakeholders have to create harmonious coordination of its operations failure to which would jeopardize organization performance. There is need to incorporate intrinsic and extrinsic interest amongst stakeholders. Water sector have several stakeholders who include its providers, farmers, individuals and commercial users. A very common way of differentiating the different kinds of stakeholders is to consider groups of people who have classifiable relationships with the organization. Friedman (1984) means that there is

a clear relationship between definitions of what stakeholders and identification of who are the stakeholders. The main groups of stakeholders are: Customers, employees, local communities, suppliers and distributors and shareholders, media and government authorities.

The strength of this theory is its provision on how participatory decision making can be adopted to influence programmable and non-programmable decision making. Water sector have to consolidate interest of heterogeneous stakeholders and devise measures on how to share scarce resources. Stakeholders such as employees and suppliers are important players in procurement process and their involvement enhances organization performance. Water distribution is a process which calls for ease of identification of needs and development of strategies to optimize its distribution. In essence, taking care of all stakeholders ensures that water sector's respective objectives are achieved. The major weakness of this theory is inability to balance the needs of heterogeneous stakeholders due to overriding interests and nature of operational guidelines.

The theory is relevant for the study since there is need to adopt contract management strategies which are geared towards monitoring and evaluating procurement resources in water sector. There is need for clarification amongst all stakeholders on contractual implementation strategies. This minimizes conflict and amplify communication of expected needs in the course of project implementation. Also, there is need for procurement department in state corporations to have in place internal control mechanisms which optimizes allocation of resources and ultimately benefit all stakeholders.

### **2.2.3 Kirkpatrick Model**

The model was developed in 1959. The model classifies training into four levels which include; reaction, learning, behaviour and results (Kirkpatrick, 1996). In reaction phase questionnaires are administered to evaluate which training needs participants thinks about in a programme. In learning phase there are notable changes in knowledge, skills or attitude and they are associated with training objectives and are assessed through use of performance appraisal tests. In level three there are

expected job behaviour change associated with training program. This will be the yardstick for identification of learning applications. It can be assessed through observations and productivity data. In level four, there will be notable results that will be outcomes of training programmes. The outcomes can financial or non-financial.

The strengths of Kirkpatrick's model are its simplicity and pragmatic approach in aiding in evaluation of training efficiency (Alliger & Janak, 1989). The model can be easily comprehended and make sense to any organization. Thus, easily applied. The model is criticized due to misunderstanding that the four levels are in ascending order thus reactions is perceived to be the lowest. Since, the model mixes evaluation and effectiveness hence does not form a continuum (Bernthal, 1995). Because the model was not meant to be hierarchical. The assumption that each level is causal to each other has not been supported (Lee & Pershing, 2000). Moreover, some studies have evaluated training on two levels and their findings are inconclusive (Alliger & Janak, 1989). In addition, Holton (1996) argues that the levels form taxonomical outcomes rather than a model since there are not clearly identified construct and empirical support for the causal relationship. Moreover, there is need for the training model to account for intervening variables that may have effect on learning and transfer process.

The relevance of this theory to this study comes in that organizational performance depends on staff competency. Quality of staff skills would aid in minimization of organization resources spillage and misappropriation. Staffs skills coherency would improve its organization performance and develop requisite team work for competitive advantage.

#### **2.2.4 The Resource-based View Theory**

Resources based view theory (RBV) was brought forth by (Peteraf & Barney, 1991). The theory supports the need for organization understanding of its resources capability and constraints they are exposed to as they strive to gain competitive advantage. Although an organization ought to strategically optimize resources gathering strategies there is no surety of optimal benefits due to pilferage of its

capabilities (Wolf, 2013). Organization capacity to manage its resources would optimize value addition to be derived from internally and externally generated resources (Hooley & Greenley, 2005). To achieve performance sustainability there is need for organization to accumulate rare, non-substitutable and non-imitable resources despite of operating in highly volatile and competitive environment (Finney et al., 2004).

RBV model assumes that firms within an industry (or within a strategic group) may be heterogeneous with respect to the bundle of resources that they control. Second, it assumes that resource heterogeneity may persist over time because the resources used to implement firms' strategies are not perfectly mobile across firms, that is, some of the resources cannot be traded in factor markets and are difficult to accumulate and imitate. Resource heterogeneity (or uniqueness) is considered a necessary condition for a resource bundle to contribute to a competitive advantage. The RBV is concerned with the connection between internal resources, strategy and the performance of the organization. It focuses on the encouragement of sustained competitive advantage through the development of human capital rather than just aligning human resources to current strategic goals (Wolf, 2013). The argument that resources internal to an organization can result to competitive advantage is a shift from earlier suggestions of strategy which focuses on the external environment and such factors as customers, industry, and competitors.

The theory has the advantage of aiding an organization in identification of its unique resources and creation of competitive environment (Lopez, 2005; Helfat & Peteraf, 2003). Further, it provides value additive criterion to be adopted whenever an organization seeks to discover blue ocean market through creation of value additive products and services. Its major drawback is its organization ability to respond optimally to dynamic organization operating environment. Assumption of inability of resources to be substituted and imitated cannot be maintained owing due to imitative competitors behaviour.

The relevance of RBV is anchored on ability of an organization to plan its resources and allocate them optimally. Procurement planning should be guided by budgetary guidelines, procurement method adopted and adherence to procurement approvals. Proper planning of resources minimizes pilferage of resources and maximize on social benefits anticipated from undertaking water-based projects.

### **2.2.5 Technology, Organization and Environment Model**

It was brought forth by (Tornatzky & Fleischer, 1990). TOE development trinity approach to be adopted whenever technology is integrated within business operating environment. Technological preparedness ought to enhance cordial functioning between internal and external stakeholders. Organization should develop evaluation techniques to be adopted while executing its operations, this is possible if its culture supports alterations of its size, organogram and scope of its operations. Environmental evaluation criterion ought to be continuously evaluated in industry, micro and macro levels (Tiago & Maria 2010).

Costs and benefits of adopting e-procurement are most frequently cited as one of the major drivers for initial usage of adopting e-procurement. Perceived benefits are the anticipated or expected advantages that can be provided to organizations. Executives in the organization do not prefer sophisticated software and applications (Makau, 2014). A computer application perceived to be easier to use than another is more likely to be accepted by end users. The same principle is considered to be applied to e-procurement adoption and usage. Hence, the perceived competency required for electronic procurement usage has influence to the willingness of a company to use it. Due to the open nature of the Internet, security is one of the main concerns of business organizations. Computer viruses and hacker attacks may cause immense losses. As a result, the lower the security risk the user perceive, the higher is the likelihood to adopt electronic procurement systems. There are four factors specified within the technological context: these are technology competency, information technology infrastructure, perceived direct benefits, and perceived indirect benefits. Technology competency represents the totality of institutional technological knowledge resident within an organization. This institutional knowledge is



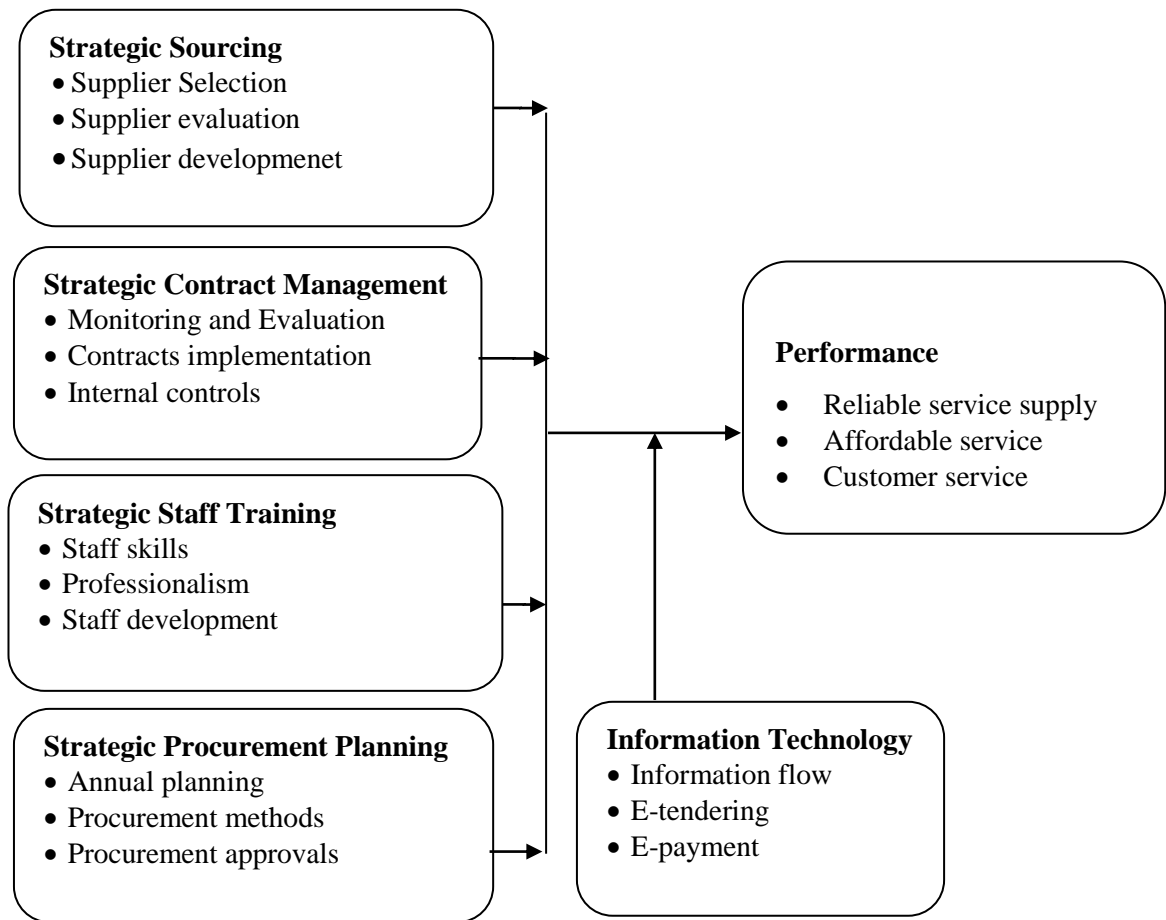
comprised of the sum of technological expertise by all members of an organization and is reflected in the technological sophistication of their operations. Firms that do not have much information system experience may be unaware of new technologies or may not want to take a risk to adopt them (Wensink & Vet, 2013).

The major strength of TOE is its ability to assimilate its operational procedures as per organization needs. Secondly, it eases time frame required for research on measures to be adopted by an organization in achievement of its objectives. The major drawback for TOE is business environment dynamism which hinders sustainability of existing technology. This may lead to huge overall and redundancy costs associated with these changes (Tiago & Maria, 2010).

The theory is relevant for the study since government have embraced use of information in provision of its services. Government performance is evaluated on its capacity to provide social amenities as compared to private sectors which is driven by profit maximization. Harmonious integration of information technology would optimize procurement practices benefits to be accrued by any organization.

### **2.3 Conceptual Framework**

According to Sekaran and Bougie (2013) conceptual framework is a schematic and logical framework depicting interrelationship between variables under examination. Through it a summary of hypothesized can be presented. Currently, strategic procurement management (strategic sourcing, strategic contract management, strategic staff training and strategic procurement planning) has direct influence on organization performance. This influence is moderated by information technology. This relationship is as shown in Figure 2.1.



**Independent variables**

**Moderating variable    Dependent variable**

**Figure 2.1: Conceptual Framework**

### 2.3.1 Strategic Sourcing

Strategic sourcing is coordination of procurement activities so to harmonize it with customer expectations. This can only be achieved through development of supplier selection criterion, their evaluation and management strategies (Thawiwinyu & Lpataned, 2009). This procedure would enable an organization to easily identify materials sources, optimal prices and financing strategies and after performance evaluation procedures. Supplier selection criteria would enable an organization to short list prequalified suppliers in advance owing to their historical business conduct

(Chiang, Hillmer & Suresh, 2012). Supplier evaluation would create healthy supplier relationship management criterion. Through this supplier would be developed as per organization quality and quantity standards. This would alter pricing strategy adopted and allow to preplan on its financing arrangement owing to historical engagement with the supplier.

Supplier evaluation criterion is based on 10 C's which are competency, capacity, cash, commitment, culture, cost, clean, consistency, control and communication. This criterion is the anchoring procurement management evaluation due to customization of organization needs evaluation procedure (Thawiwinyu & Lpataned, 2009). It provides operational manual for gauging supplier efficiency and ability to deliver. Supplier competency evaluation involves comparison between supplier stated capacities against organization need. This may be achieved through assessment as to why alternative supplier should be changed. In capacity evaluation an organization should examine the swiftness in which supplier may respond to organization needs. Supplier commitment may be examined through corporation compliance with professional ethics and standards. Supplier control maybe evaluated through examination of institution control of their policies, procedures, supply chain and process. Also, supplier should commit on their capacity to operate optimally contingent to their state of resources endowment. Financial stability of supplier should be confirmed and reliable documentation to be provided to confirm their financial soundness. Supplier consistency should be guaranteed dependent on their capacity to provide quality goods and services in subsequent supplies. Suppliers should be committed to promote environment protection and control policies. There is need for provision of reliable modes of communication that ought to be reliable throughout the period of engagement (Odhiambo, 2013; Chiang et al., 2012)

Although, there is no customized fit supplier development strategy. Procurement professionals should adopt the most appropriate through aligning their organization culture as per their supplier capacity. This minimizes likelihood of procuring goods and services with wide variations from organization targets. Through supplier development corporation would be better placed in redesigning and aligning their needs with corporate goals. Also, supplier and the corporation should match their

needs with each other. Failed alignment may lead to resources spillage and mismatch of their corporation goals. Success supplier development is an outcome of prior due diligence of corporation needs. This is possible through harmonious blending of firms technical and managerial skills. Staff interpersonal skills ought to fully develop otherwise they may have minimal influencing skills. Furthermore, corporations should be guided by category of strategy, scale of value or improvement opportunity, cost, complexity and duration of value attainment and Supplier Corporation (Nyagai et al., 2014; Chiang et al., 2012)

### **2.3.2 Strategic Contract Management**

Strategic contract management is cosmopolitan of activities carried out throughout the procurement process (Kakwezi, 2012). This process entails identification and cross examination of alternative bids. Upon successful selection operational procedures are agreed on. According to Uher and Davenport (2009) there is need for an agreement between all stakeholders on monitoring, evaluation and review procedures to be adhered to during procurement implementation. This minimize conflicts during the period of contract performance.

Cropper (2008) argued that there is need for coherent procurement procedure performance to ensure that there is efficient and reliable implementation of procurement process. During contract administration, internal and external control mechanisms ought to be understood. Payment periods and methods should be agreed amongst them and any drift from earlier agreement ought to be clearly communicated. Clear communication would mitigate and eliminate hindrances towards provision of the right quality and quantity agreed on (Nysten-Haarala, Lee & Lehto, 2010).

Effective contract management can be achieved through development of clearly defined internal control measures (Jusoh & Parnell, 2008). These controls should not be void of incorporating competition amongst suppliers which may trigger changes in quality, compliance and supplier relationship. Ray (2011) argued that incorporation of internal controls has capacity on minimizing likelihood of defects, decreased procurement life cycle and increased value for money. Further, internal

controls minimize procurement costs, increases revenue growth, enhance market share and erodes possibilities of its cannibalization (Mead & Grunerberg, 2013; Sollish & Semanik, 2012).

### **2.3.3 Strategic Staff Training**

Staff capital has the capacity to create and optimize competitive advantage within an organization (Banda, 2009). This improves and alter organization capabilities by altering their perception, motivation, commitment and job satisfaction. This ultimately minimizes pilferage and spillage of organization human resources capacity. Berger and Humphrey (2007) argued that it is economical to implement professionalism amongst employees who have requisite skills for executing a certain task.

There are alternative strategies which have been developed by institutions to impact requisite skills. Sultana (2012) argued that organization respond to internal and external changes depending on prevailing skills gaps. Those organizations which are malnourished on procurement professional skills incurs huge costs in acquisition of their respective raw materials. Formal and informal skills development can be adopted by State Corporation to bridge any skill gap amongst its heterogeneous employment work force (Appiah, 2010). Through these training an institution would manage procurement life cycle, improve on client relationship management and mitigate against conflict which may arise during procurement life cycle (Seleim, 2007).

Staff development is formal and systematic modification of employees' behaviors through instructions. The process equips workforce with requisite knowledge, skills and attitude that would in pursuance of organization goals and objectives. These skills would aid in response in environmental demand and skills adaptability. Furthermore, human capital development has capacity in optimizing organization needs being met. Staff development successful contribution in an organization is anchored on organization capacity to develop employees in line with their needs. This would deter organization capacity to resist changes emanating from development. Staff development should meet both short term and long-term goals.

Though, it is anticipated to be beneficial there is need to align employee needs with organization plan. Work place competencies improvement creates competitive advantage in an organization since it meets employee's needs with minimal delays (Sultana, 2012; Ndumbi & Okello, 2014)

#### **2.3.4 Strategic Procurement Planning**

According to Basheka (2009) proper procurement plans optimize achievement of organization goals. This can only be achieved through consolidation and amalgamation of data from heterogeneous sources with the ultimate goals of optimizing benefits gained from any input process (Davis, 2014). Successful planning calls for easier evaluation of organization strengths, opportunities, threats and weakness facing any opportunity for a firm (Chelladurai, 2014). Manual (2009) argued that optimal procurement process is not void of organization capacity to gather structured and unstructured data. This can be used to aid in annual procurement needs assessment, awareness and evaluation.

All departments within any corporation ought to prepare expenditure estimates in an accounting cycle. This aids in examination, prioritization and evaluation of value contribution associated with each expense (Apiyo & Mburu, 2014). Coherent evaluation of procurement planning would involve identification of all needs, evaluations of alternative methods which would be adopted to amalgamate required resources and allocate as per organization policy (Lewis & Roehrich, 2009). Adherence to procurement plans within an organization would aid in achievement of organization goals and objectives.

Procurement approval framework is procedural guideline on procurement control, monitoring and evaluation (Makibira & Waiganjo, 2014). Through, these framework procurement activities are stipulated and evaluation mechanisms documented. Coherent procurement framework should provide equal opportunity amongst all tender participants, address procurement queries in transparent and comprehensive approach and all applicants must be compliant with objective evaluation criterion. Total compliance with this trinity approach would improve organization information flow between supplier and seeker of goods and services. Also, it would aid in

responding to newly available competitive advantages. Further, it promotes health financial management approaches due to its capacity to match orders, improve quality audit and better operationalize security measures which would be beneficial to a given organization (Nzau & Njeru, 2014; Sharma, 2013).

### **2.3.5 Information Technology**

Integration of information technology in business operations involves digitization of traditional manual processes (Campbell, 2005). This integrates procurement process and minimize its life cycle. Information technology that supports procurement practices is one that contributes to productivity improvement, enhances routine operations, as well as improving logistical activities in the procurement network. The level of productivity is assessed through procurement optimization network while procurement within operations covers the capacity and supply chain inventory management. Firms adopts different forms of information technologies aiming at facilitating performances in the area of procurement practices (Thogori *et al.*, 2018).

Each of the adopted technology when combined with supply chain is supposed to enhance the operational performance as well as overall performance of the firm. This is only achievable when the information technologies are aligned with the firm's procurement strategic objectives and goals. Information technology and organization's operations has become one of the crucial elements in the procurement practices since they are concerned with actual value creation and transformational framework of the firm (Thogori *et al.*, 2018). Sound procurement practices when combined with information technology aims at taking care of preferences of customers in the process of executing strategies. They form key tools for competition that enhances the level of firm's performance.

Information technology is associated with decreased procurement costs and improved quality and quantity of procurement management. E-procurement has aided in management of procurement documentations and aids in comparative analysis amongst bids. State Corporation have embraced information technology and to aid in procurement flaws identification the government directed all state corporation to be disseminating information through their respective websites.

Makau (2014) argued that internet penetration and use of telecommunication technology has not only enhanced communication but minimized information gathering costs. E-tendering have minimized possibilities of altering tender documents upon bidding. This process would aid in minimizing likelihood of flawed procurement process. Further, increased incorporation of information technology in tendering would enable competitive bidding. Integrated procurement process would be paramount in creation of catalogue evaluation matrix which would easily aid in identification of opportunities to optimize on economies of scale.

Electronic payment has minimized possibilities of paying those who never supplied goods and services. According to Orina (2013) E-payment have the capacity to minimize possibilities of double payments and aid in mitigating engagement in corruption engagement. Faster payment of supplied goods and services would aid in procurement management and trigger superior procurement performance and would lead to customer loyalty and satisfaction (Dale, 2010).

### **2.3.6 Performance**

Performance is the ability to synchronize its internal capacity and resources to achieve its vision and mission (Maalu & Dosho, 2016). It can be broadly classified into financial and non-financial depending on measures adopted to evaluate it. In financial context market based and accounting indicators are adopted to measures it (Iavorska, 2014). In non-financial context, opinion, attributes and opinion of organization performance is evaluated through customer satisfaction, customer loyalty, cost reduction and timely delivery are adopted (Maalu & Dosho, 2016).

Government based institutions are not profit based but they ought to provide social and economic benefits as they provide services. According to Maalu and Dosho (2016) even though non-profit making is not interested with wealth maximization principle their inability to provide reliable services on its citizens may trigger resistance and revolution. According to Balanced Score Card [BSC] (2009) all institutions must always strive to achieve their objectives, this is anchored on internal business operations, customer needs, innovation and business perspective. To



optimize benefits as stipulated in balance score card their need for harmonious interaction amongst stakeholders.

Monitoring of procurement management process is lengthy and tedious if executed manually, it may not be easy to carry out procurement efficiently in absence of technologically enabled procurement auditing (BSC, 2009). Introduction of technology enabled system calls for continued training on how to carry out procurement process. Furthermore, lowly training employee may hinder adoption of innovations due to fear and resistance to change.

## **2.4 Empirical Review**

Documented empirical literature on causality of procurement management process and procurement performance was examined and existing gaps identified and research gaps bridging strategies was discussed.

### **2.4.1 Strategic Sourcing and Performance**

Thawiwinyu and Laptaned, (2009) executed a detailed study on the impacts of strategic sourcing on supply chain performance management. Primary data was gathered through semi structured questionnaires. Inferential and descriptive analyzed quantitative data. Significant influence of internal coordination, strategic elevations and creation of long-term relationship with suppliers enhanced organization performance. Prior to fitting classical regression model, it was appropriate to examine regression diagnostic tests to minimize likelihood of drawing biased conclusions. Furthermore, this study was executed amongst profit making entity whose performance may be evaluated using alternative measures.

A study done by Odhiambo, (2013) examined the effect of strategic sourcing practices and performance of multinationals in Kenya. Descriptive research design was applied and primary data gathered through structured questionnaires. Quantitative data was analyzed through correlation, regression descriptive statistics. Qualitative data was thematically analyzed. It was reported that there was positive and significant effect of strategic sourcing, internal integration and information

sharing on procurement performance. These findings cannot be generalized in public sector since manufacturing companies are geared towards profit making and state corporations are meant to alleviate social needs.

Nyagari et al. (2014) examined causality of strategic sourcing and performance of tier three banks in Kenya. The study adopted descriptive research design and purposive sampling were applied. Structured questionnaire was the tool for data collection which was analyzed through descriptive and inferential statistics. Positive influence of banking performance was reported. Data analysis through exploratory factor analysis to examine most optimal attributes to be retained for subsequent analysis should have prioritized regression analysis. Further, failure to execute diagnostic test amplified possibilities of drawing biased findings. Moreover, some commercial banks are multinationals hence there are high chances of them incorporating strategic culture emanating from country of domicile.

Chiang et al. (2012) has conducted a study on the impact of strategic sourcing and flexibility on firm's supply chain agility. Cross sectional design was adopted and data gathered using questionnaires. Univariate and bivariate data analysis were used to analyze the data. Strategic sourcing positively affected organization performance. There was need to incorporate qualitative aspect of data gathering to optimize on gathering more information especially during focused group discussions.

#### **2.4.2 Strategic Contract Management and Performance**

In a study conducted in the ministry of Energy in Kenya, Kiage (2013) revealed significant effect of contract management on organization performance. The study evaluated contract management in the context of planning, organizing, control and directing payments. Besides, timeliness, work plans and contract periods were key contractual issues that ensured that most projects would have no cost overruns. Although, the study drew respondents from public corporation it failed to incorporate qualitative data which would have aided in in-depth examination of contract management on performance.

Bartels, (2009) examined the influence of contract management on procurement performance. Descriptive research design was adopted and semi structured questionnaires gathered primary data amongst respondents who were selected through simple random sampling. Descriptive statistics and classical regression analysis analyzed the data. Contract management had positive effect on organization performance. There is need to examine electronic contractual arrangement, though its time saving and minimize paper works. Its risk exposure ought to be optimally evaluated and all measures geared towards information protection and security deployed. Moreover, examination of classical assumption would have minimized possibilities of drawing biased conclusion in the study.

Maria's (2013) examined the role of contract management in performance of procurement departments. Descriptive design was applied and simple sampling selected respondents amongst whom research instrument were administered. Qualitative data was gathered through interview guide. It was established that procurement performance was dependent on procurement management strategy adopted by respective corporation. Although, the study combined qualitative and quantitative data there was need to execute focus group discussion to complement data gathered through interview guide and questionnaires. It was appropriate to carry out classical regression assumptions to examine model robustness.

Synyenlentu, (2014) conducted a study on procurement of essential water treatment chemical at the Ghana Water Company Limited. A sample of 85 respondents were identified purposively. The study revealed that procurement of water treatment chemicals abided with various principles and procurement phases. Transparency was identified as one of the principles of procurement. The study observed that procurement management using Public Procurement Act (PPA) was not sufficient in checking transparency on procurement of essential water chemicals. It was also revealed that the procurement of essential chemicals was open to all interested individuals to apply, which was a significant step towards achieving transparency.

Karanja and Kiarie, (2015) investigated the influence of procurement practices on performance of Guaranty trust bank. Cross sectional research design was adopted

and questionnaires collected the data. Univariate and bivariate were used to analyze the data. It was found that use of information technology to manage procurement process optimized firm performance. It was appropriate to draw respondents from several banks rather than single institution since this would have created an option for drawing biased findings.

### **2.4.3 Strategic Staff Training and Performance**

Ndumbi and Okello (2014) investigated the role of staff training on procurement performance in state corporations in Kenya. Cross sectional research design was adopted and simple random sampling was used to select respondents. Univariate and bivariate analysis was used to analyze the data. Positive relationship between staff training and procurement performance was reported. The study should have incorporated qualitative data and analyzed the data through exploratory factors analysis to examine interrelationship of study variable attributes adopted as measurement of the research instrument.

Seleim (2007) examined the effect of human capital on organization competitive advantage. Descriptive research design was adopted. Questionnaires gathered primary data. Cross sectional research design was adopted. Inferential and descriptive statistics were adopted to analyze data collected using questionnaires. Positive relationship between human capital and competitive advantage was reported. There was need to carry data diagnostic tests prior to fitting regression models. Further, reliance on only quantitative data may have created biased response especially because the research instrument had closed ended responses. Alternative analysis approach ought to have been adopted to confirm or contradict regression analysis findings.

A study conducted by Barsemoi, Mwangagi and Asienyo (2014) to assess the factors influencing procurement performance in private sector in Kenya focused on the procurement practices in Henkel Chemicals (E.A). Cross sectional research design was adopted and primary data was gathered through use of questionnaires. Bivariate and Univariate approaches were used to analyze the data. It was found that staff training and development positively contributed towards procurement performance.

Ajisafe, Orifa and Balogun (2015) investigated the influence of human capital on organization performance. Descriptive research design was adopted and primary data collected from 62 respondents of five commercial banks. Correlation and descriptive statistics were used to analyze the data. Positive and significant influence of human capital on organization performance was reported. It was recommended that organization which are geared towards superior performance should devote resources on training and development of its human capital. This not only enhances performance but also create job security which motivates and creates commitment amongst employees. These findings cannot be generalized in Kenya owing to different state of economic growth with Malaysia. Further the study deployed quantitative data only.

Tessema (2015) investigated the impact of human capital development on firm performance amongst foot wear companies in Ethiopia. Cross sectional research design was adopted. Semi structured questionnaires were used to collect primary data. Inferential and descriptive statistics were used to analyze the data. Positive and significant impact of human capital on firm performance was documented. Although, the study adopted inferential statistics to analyze the data it failed to test for normality which is an assumption for correlation and regression analysis. This would have created likelihood of drawing biased conclusions. Further, the study was in manufacturing sector thus it was not easy to generalize the findings in Kenya economic characteristics are different and also in different social and political environment.

Chigoize, Aga and Onyia (2018) investigated the influence of human capital development on organization performance of manufacturing companies in Nigeria. Survey research design was adopted. Primary data was collected using semi structured questionnaires. Univariate and bivariate statistics was used to analyze the data. Positive effect of human capital on organization performance was reported. It was concluded that in order to enhance employee motivation and commitment there was need to continuously allocate resources geared toward human capital development this not only motivate and commit them but also enhance organization

performance. These findings may contrast state corporations' situations since they are driven by profitability while state bodies are geared by social economic support.

#### **2.4.4 Strategic Procurement Planning and Performance**

In a study undertaken by Nzau and Njeru (2014) on factors affecting procurement performance of public universities in Nairobi by empirically examining the relationships between staff competence and top management as independent variables and procurement planning as dependent variable. By contrast their findings excluded ICT infrastructure and leadership management support, policy regulatory framework and organizational performance as variables. These study findings cannot be generalized in water sector since public universities are regulated by different regulatory framework.

Sharma (2013) examine the effect of leadership on organization commitment. Cross sectional research design was adopted and data gathered through questionnaire and analyzed using inferential and descriptive statistics. Results found that on leadership management led to commitment for procurement planning issues from top management within an organization was inadequate. The study failed to capture internal procurement regulation, ICT infrastructure support, organizational performance and policy regulatory framework as variables. It was appropriate to blend quantitative data with qualitative data so as to bridge on shortcomings associated with gathering quantitative data.

Basheka, Oluca and Mugurusi (2015) examined the role of procurement planning in public procurement. Descriptive research design was adopted and primary data gathered using semi structured questionnaires. Inferential and descriptive statistics analyzed quantitative data. Positive impact of procurement planning on firm performance was reported. It was necessary to carry out regression modelling classical assumptions to eliminate possibilities of bias.

Basheka (2009) examined the role of procurement planning in efficient service delivery in public sector. Cross sectional research design as adopted and primary data gathered through questionnaires. Inferential and descriptive statistics analyzed

quantitative data. Positive and significant effect of procurement planning on service delivery was reported. It was appropriate to carry out exploratory factor analysis (EFA) to explore interrelationships between attributes under examination and attributes cumulative contribution to the study. Furthermore, reliability results were missing hence it jeopardized the research tool adopted in the study.

Anabah (2015) investigated the effect of procurement planning on organization performance on local state institutions in Nigeria. Cross sectional research design was adopted. Univariate and bivariate data analysis were adopted to analyse primary data gathered using questionnaires. It was appropriate to carry out classical regression diagnostic tests prior to fitting regression model. This would have aided in eliminating possibilities of drawing biased findings.

#### **2.4.5 Information Technology and Performance**

A study prepared by Wensink and Vet (2013) on behalf of the PricewaterhouseCoopers (PwC) and Ecorys for the European Commission (EC) focused on how to identify and reduce corruption in public procurement in the European Union (EU). The study found that electronic procurement (e-procurement) improves transparency, exchange of information and also communication in virtually all member States of the EC. The study further observed that public procurement systems and databases for the collection of data are drafted not only to facilitate various principles and procurement phases.

A study by Makau (2014) analyzed challenges facing adoption of e-procurement in the public sector. The study was a case of Nairobi Water and Sewerage Company. They concurred that electronic procurement is a practice which has the capacity to enhance efficiency and transparency. It was found that integration of information technology enhanced adherence to procurement ethics and acceptable standards of practices. Qualitative data ought to have been collected in addition to quantitative data to address shortcomings associated with quantitative data alone.

A study by Aman and Kasimin (2011) investigated the role of E-procurement in government entities. Cross sectional design was adopted. Primary data was collected through use of semi-structured questionnaires. Univariate and bivariate data analysis technique were adopted. Positive significant effect of E-procurement on firm performance was reported. In addition, to quantitative data, qualitative data ought to have been collected to complement each other.

## **2.5 Critique of Existing Literature**

From the foregoing empirical and literature review it can be identified that most scholars have been skewed towards quantitative research design and have erred on choice of analysis procedure due to their failure to incorporate diagnostics tests prior to regression modeling (Hassan, 2012; Azambuja et al., 2014; Sobhani et al., 2014). Secondly, local empirical evidence has shortcomings on methodological and conceptualization as compared to the current study for example, a study entitled strategic sourcing, supplier relationship management and people engagement and procurement performance among commercial banks in Kenya was done by Masiko (2013), Oyuke and Shale (2014) it is so clear that all these studies had examined direct effect, and this study examined direct and moderating effect.

Studies such as Hassan (2012), Azambuja et al. (2014), Sobhani et al. (2014) have been done internationally on procurement management. Azambuja et al. (2014) did a study on strategic procurement for the industrial supply chain. A cross-case analysis described similarities and differences between engineering-procure-construction (EPC) and helped to compare empirical findings with the broader literature. Findings contradict some areas of the literature, in particular the push for strategic supplier alliances. Other findings confirm the strategic importance of early procurement decisions to project performance and similarity across the types of decision drivers for supplier selection.

Sobhani et al. (2014) carried out a study on strategic procurement and financial performance of Iranian manufacturing companies. Findings of this study noted a positive relationship between the strategic procurement and financial performance of the companies. For developing strategic procurement, firms should therefore improve



the skills in their purchasing professionals, tally the strategic procurement with overall business strategy with long-term plans, select the potential and key suppliers, and create a good relationship with them. These factors could affect a firm's financial performance and increase profit.

Furthermore, various studies have been conducted in the Kenyan context; for example, a study entitled strategic sourcing, supplier relationship management and people engagement and procurement performance among commercial banks in Kenya was done by Masiko (2013), Oyuke and Shale (2014) did a study on role of strategic sourcing, supplier relationship management and people engagement on organizational performance, a case study of Kenya National Audit Office. The study confirmed that given the current and projected expenditures in procurement as well as the increasing importance of the purchasing function in contributing to firm profitability, it is important for firms to employ a systematic means of deciding which procurement management contributes most to the attainment of corporate goals. Mokogi et al. (2015) did a study on effects of procurement practices on the performance of commercial state-owned enterprises in Nairobi County. The study findings revealed that buyer supplier relationships, supplier selection procedures, organizational capacity and procurement process procurement management had a strong impact on the performance of commercial state-owned enterprises studied.

## **2.6 Summary of the Literature**

This chapter has reviewed literatures on theoretical and empirical that underpin the study at hand. The chapter comprehensively has discussed research findings emanating from the works of previous researchers as well as existing theories in relation to procurement management. The conceptual framework is drawn so as to enable prompt identification of the study independent variables and the dependent variable. Indicators are documented under each independent variable which is guided by the research instruments to be adopted by the study. The chapter has concluded by establishing critiques to identified literature and consequently has deduced the research gap which this study embarks on to fill.

From theoretical review there is need for customized study to examine role of strategic management practices on performance of water companies in Kenya. Resources based view supports the need to acquire resources as tools for competitive advantage. Further, TOE model argues on the need for integration of information technology to aid in efficient procurement practices and organization performance.

There is no guarantee for business environment sustainability, hence State Corporation ought to adopt strategic management practices to aid in efficient provision of social, economic and political needs of citizens. Since, State Corporation are non-profit making flawed procurement process would lead to massive loss of procurement value and hinder attainment of various government strategic objectives such as vision 2030.

## **2.7 Research Gaps**

From the examination of the written and published information on procurement management and performance of an organization, the research recognizes that there is a call for a study to be carried out in this field in Kenya. Literature obtainable signify that studies available are mostly done on developed countries and not focusing more developing states such as in Africa (Sobhani et al. 2014; Hassan, 2012; Azambuja et al. 2014, Sobhani et al. 2014). Past studies such as Mokogi et al. (2015), Sobhani et al. (2014); Oyuke and Shale (2014) have tended to study on procurement management. In addition, such studies done on the effect of strategic sourcing, supplier relationship management, role of IT and people engagement on performance have been done in other industries except not in the water sector. The area of strategic sourcing, contract management, staff training, and procurement planning and application of IT has been neglected in these past studies which this study seeks to address.

Furthermore, various studies have been conducted in the Kenyan context; for example, a study entitled strategic sourcing, supplier relationship management and people engagement and procurement performance among commercial banks in Kenya was done by Masiko (2013), Oyuke and Shale (2014) these studies called for

alteration of exiting procurement to remain strategic in provision of requisite services and amenities.

Masiko, (2013) study recommended that the existing procurement management be revised and strengthened to further organizational performance. Previous studies have linked procurement management and organizational performance to strategic sourcing, contract management, staff training and procurement planning. However, there is limited research carried out on influence of procurement management and organizational performance which the research intends to bridge.

## CHAPTER THREE

### RESEARCH METHODOLOGY

#### 3.1 Introduction

This chapter presents methodological approach to be followed in execution of the study. It discusses philosophical foundations, research design, sampling procedure, data gathering and data processing and analysis.

#### 3.2 Research Philosophy

Research philosophy is an important part of research methodology. Research philosophy is classified as ontology, epistemology and axiology. These philosophical approaches enable to decide which approach should be adopted by the researcher and why, which is derived from research questions (Saunders, Lewis, & Thornhill, 2014). The important assumptions are present in research philosophy which explains about the researcher's view regarding the world. These assumptions helped to determine research strategy and the methods of that strategy.

Ontology is based on the nature of reality. It is classified on the basis of objectivism and subjectivism. The first aspect of ontology, objectivism portrays the position that social objects persist in reality external to social actors. Secondly, subjectivism is concerned on the social phenomena which are emerged from the perceptions and consequences of those social actors concerned with their existence (Saunders et al., 2014). Epistemology is understood about the acceptable knowledge of a particular area of study. It can be divided into two aspects; resources researcher and feeling researcher. The 'resource researcher' deals with the data from the perspective of natural scientist. On the other hand, the 'feeling researcher' is concerned about the feelings and attitudes of the workers towards their managers. So, the 'resource researcher' is involves developing positivist philosophy whereas the 'feeling researcher' is focus on interpretivist philosophy. Epistemology is therefore classified as Positivism, Realism and Interpretivism in the domain of research philosophy (Sekaran & Bougie, 2013).

The philosophical approach of natural scientist is observed in positivism as the work of natural scientist is based on observable social entity. Research strategy is approached on the basis of data collection and hypothesis development. These hypotheses were tested and confirmed to be used for further research. Another feature of this philosophy is that the positivist researcher follows highly structured methodology in order to facilitate the hypothesis. Furthermore, positivism works on quantifiable observations and accordingly statistical analysis is obtained (Sekaran & Bougie, 2013).

Realism is another philosophical branch of epistemology which relates to scientific enquiry. The core feature of realism is pertained to disclose the truth of reality and the existence of the objects are prevalent independently in the human mind. Realism is classified as direct realism and critical realism. Direct realism explains what is experienced by our senses and that are attained by the researcher. On the other hand, the critical realism expresses that what is experienced by our sensations those are images of the real world, not the reality. The difference between the two is that the first is related to the capacity of research what is studied and the critical realist recognizes the importance of multi-level study in the context of the individual, the group and the organization (Saunders et al., 2014).

Interpretivism is a branch epistemology which is focused to the assessment the differences between humans as social actors. The issue of difference is emphasized on the difference between conducting research among people rather than objects such as medicines and computer. In this philosophy, interpretation of social roles has been presented with respect of own set of meaning. In addition, we interpret the social roles of others in accordance with our own set of meanings (Saunders et al., 2014).

Axiology is a branch of philosophy which is concerned about judgments, aesthetics, and ethics. The process of social enquiry is involved in this approach. Researchers' axiological skill is executed in order to make judgments about the research content and its conduct. For example, Researchers' philosophical approach is reflected on his or her values as well as in their research work, especially in the area of data

collection or data analysis procedures. However, this method creates impact in social sciences research (Sekaran & Bougie, 2013).

Positivism was adopted in this study. It was appropriate for the study since the study explored the nexus between strategic procurement practices management and organization performance in public water companies in Kenya. According to Copper and Schindler (2013) positivism would allow the research to examine study hypothesis for possible acceptance or rejection through statistical analysis.

### **3.3 Research Design**

This study was based on descriptive research design since the study described strategic procurement strategies adopted by water companies in Kenya and how they are impacting on their organization performance. In a descriptive research design, a researcher is solely interested in describing the situation or case under his/her research study. It is a theory-based research design which is created by gather, analyze and presents collected data. By implementing an in-depth research design such as this, a researcher can provide insights into the why and how of research (Oso & Onen, 2009). According to Saunders et al., (2014) whenever the researcher seeks to describe when, what, how and why the situation as per the problem under exploration, then the biased research design is descriptive.

Research design is schematic framework detailing how research study was executed (Kothari, 2011). In addition, Sekaran and Bougie (2013) perceived it as step by step guidelines on how research objectives can be achieved with minimal distraction. In this study descriptive research design was adopted. Research design is defined as a framework of methods and techniques chosen by a researcher to combine various components of research in a reasonably logical manner so that the research problem is efficiently handled. It provides insights about “how” to conduct research using a particular methodology (Cooper & Schindler, 2013).

### 3.4 Target Population

The study population was water companies in Kenya and study target population were 79 public water companies in Kenya (See Appendix III). From each public water company's procurement manager, finance manager and Chief Executive Officers (CEO) were interviewed. The respondents are selected for the study as they are all involved in the procurement practices undertaken by the water companies thus deemed to possess variable information for the study. Target population is the complete count of all elements or individuals under examination (Sekaran & Bougie, 2013). Target population is constituted by individuals or elements who has homogeneous characteristics under examination (Saunders et al., 2014).

**Table 3.1: Target Population**

<b>Position</b>	<b>Number of Procurement Employees</b>	<b>Percentage of total population</b>
Procurement manager	79	33.3
Finance Manager	79	33.3
Chief Executive Officer	79	33.3
<b>Total</b>	<b>237</b>	<b>100</b>

### 3.5 Sample and Sampling Techniques

A sample is a subset of target population which is used to draw inferences (Saunders et al., 2014). According to Oso and Onen (2009), thirty percent of study (accessible) population is adequate. Sample size is dependent on geographical coverage, budgetary constraints, time and level of precision (Sekaran & Bougie, 2013).

Stratified sampling was adopted to select respondents from water service companies. According to Oso and Onen (2009) stratified sampling is appropriate when the researcher seeks to allocate respondents as per their proportionate sizes. Simple random sampling was adopted to give all respondents from the target population

equal likelihood of participating in the study. Yamane (1968) sample size formula was adopted to determine the sample.

$$n = \frac{N}{1 + Ne^2}$$

Where, n=sample size, N= population size, e= the error of sampling. This formula was used to calculate the sample size.

$$\text{Thus } n = \frac{237}{1 + 237(0.05)^2} = 150.$$

A sample of 150 respondents was distributed as follows.

**Table 3.2: Sample Size**

<b>Position</b>	<b>Number of Employees</b>	<b>Percentage</b>
Procurement management	50	33.3
Finance Manager	50	33.3
Chief Executive Officer	50	33.3
<b>Total</b>	<b>150</b>	<b>100</b>

### 3.6 Data Collection Instruments

According to Cooper and Schindler (2014) data collecting instruments are used to aid in consolidating requisite information from study participants. Primary data was adopted in the study. It was gathered using semi structured questionnaires. It was relied on owing to its ability to consolidate required information with minimal time and cost.

Kothari (2011) argued that use of questionnaire fastens data collection process as compared to focus group discussion guides which calls for presence of both data collection person and respondents. Further, it can be easily administered amongst heterogeneous group of respondents.



### **3.7 Pilot Testing**

The researcher conducted a pilot test to support reliability and validity tests for the research. This was applied to obtain desired information, it is thus, conducted to test weaknesses in design and instrumentation to provide proxy data for selection of a sample (Copper & Schindler, 2011). Copper and Schindler (2011) argues piloting should be executed in at least ten percent of targeted sample size. Research instruments piloting is meant to authenticate quality of research instrument as per study research questions and objectives (Kothari, 2011). In fact, through piloting a study can examine respondents understanding of research instrument (Saunders et al., 2014). Piloting approach ought to mimic the actual approach to be adopted by the actual study. Copper and Schindler (2011) argued that piloting ought to be at least 10% of sample size, consequently 15 Procurement Managers, Finance Managers and Chief Executive Officers hailing from three public water companies were considered in the study. Selected companies were excluded in the final study.

#### **3.7.1 Validity of the Research Instrument**

Accuracy of a research instrument have significant influence on quality of research findings (Fidel, 2009). Hence, there is need for examination on the degree to which research results can be warranted. This is achievable through content and construct validity examination. Construct validity was examined on ability of research instrument to be anchored on research objectives. Content was examined with assistance from supervisors and panelist opinion during presentations before data collection.

#### **3.7.2 Reliability of the Research Instrument**

The reliability test is conducted to measure whether the research instrument provides the same results each time the instrument is used among the sample respondents. The common method for testing the reliability of a research instrument is by using the Cronbach's Alpha. The Cronbach's alpha allows for estimating the internal consistency within the research instrument (Wise, 2013). All constructs with an alpha score of 0.7 are adopted for the study and any construct with an alpha score less than

the critical value is amended. The researcher applied the Cronbach's alpha in conducting reliability tests.

**Table 3.3: Cronbach's Coefficient**

<b>Cronbach's Alpha</b>	<b>Internal Consistency</b>
$\alpha \geq 0.9$	Excellent
$0.8 \leq \alpha < 0.9$	Good
$0.7 \leq \alpha < 0.8$	Acceptable
$0.6 \leq \alpha < 0.7$	Questionable
$0.5 \leq \alpha < 0.6$	Poor
$0.5 > \alpha$	Unacceptable

Source: (Wise, 2013).

### **3.8 Data Collection Procedure**

Data used in the study was primary quantitative. The primary data was collected through a questionnaire. The questionnaires were self-administered with the researcher in person. Introduction letter was sought from board of graduate studies of Jomo Kenyatta University and Technology, it was presented at National Commission for Science and Technology (NACOSTI). Research permit from NACOSTI was presented at respective procurement department of Water Company.

### **3.9 Data Analysis and Presentation**

The study employed descriptive and inferential statistics to analyze quantitative data. Prior to executing inferential statistics diagnostic tests were carried. Quantitative data was analyzed through descriptive and inferential statistics with aid of SPSS version 24.

#### **3.9.1 Descriptive Statistics**

Descriptive statistics which include mean, standard deviation, frequencies and percentage were used to analyze the data. Findings was presented using graphs and tables.

### 3.9.2 Inferential Statistics

Inferential statistics comprised of Pearson correlation and regression analysis. Simple regression was examined the nature of influence of each strategic procurement management attributes such as strategic source, contract management, staff training and procurement planning on procurement management. Multiple regression was adopted to examine joint influence of strategic procurement management and moderating effect of information technology on procurement management. The general multiple regression models for this study was:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \epsilon \dots \dots \dots (3.1)$$

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 Z + Z (\beta_6 X_1 + \beta_7 X_2 + \beta_8 X_3 + \beta_9 X_4) + \epsilon (3.2)$$

Where:  $Y$  = Dependent Variable (procurement performance)

Independent variables, which include:

$X_1$  is Strategic sourcing

$X_2$  is Strategic contract management

$X_3$  is Strategic staff training

$X_4$  is Strategic procurement planning

$Z$  is Information technology.

$\alpha$  = the constant

$\beta_{1-9}$  = Regression slope coefficients

$\epsilon$  = error term

**Table 3.4: Summary of Variables Measurement, Analysis and Interpretation**

Hypotheses	Measurement Scale	Analytical Models	Interpretation
H <sub>01</sub> : There is no positive significant influence of strategic sourcing on performance of public water sector in Kenya	Quantitative Data Qualitative 5 Point-Likert Scale	Simple linear regression analysis $Y = \alpha + \beta_1 X_1 + \epsilon$ <b>Where:</b> Y is Performance $\alpha$ is a constant $\beta_1$ are regression coefficients $\epsilon$ is the error term	$R^2$ to assess explanatory power of strategic sourcing on organization performance of water companies in Kenya. F-test (Analysis of variance) to assess the overall significance and robustness of the regression model. T statistics assesses the significance of the slope coefficients
H <sub>02</sub> : There is no positive significant influence of strategic contract management on performance of public water companies in Kenya	Quantitative Data Qualitative 5 Point-Likert Scale	Simple linear regression analysis $Y = \alpha + \beta_2 X_2 + \epsilon$ <b>Where:</b> Y is Performance X <sub>1</sub> is Contract management $\alpha$ is a constant $\beta_2$ are regression coefficients $\epsilon$ is the error term	$R^2$ to assess explanatory power of strategic contract management on performance of water companies in Kenya.
H <sub>03</sub> : There is no positive significant influence of strategic staff training on performance of public water companies in Kenya	Quantitative Data Qualitative 5 Point-Likert Scale	Simple linear regression analysis $Y = \alpha + \beta_3 X_3 + \epsilon$ <b>Where:</b> Y is Performance $\alpha$ is a constant $\beta_3$ are regression coefficients $\epsilon$ is the error term	$R^2$ to assess explanatory power of strategic staff training on performance of water companies in Kenya.
H <sub>04</sub> : There is no positive significant influence of strategic procurement planning performance of public water companies in Kenya	Quantitative Data Qualitative 5 Point-Likert Scale	Simple linear regression analysis $Y = \alpha + \beta_4 X_4 + \epsilon$ <b>Where:</b> Y is performance X <sub>4</sub> is Procurement planning $\alpha$ is a constant $\beta_4$ are regression coefficients $\epsilon$ is the error term	$R^2$ to assess explanatory power of strategic procurement planning on performance of water companies in Kenya.
H <sub>05</sub> : There no significant moderating effect of information technology on the influence of strategic procurement practices on performance of public water companies in Kenya	Quantitative Data Qualitative 5 Point-Likert Scale	Step wise Regression analysis $Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \epsilon$ $Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 Z + \beta_6 X_1 * Z + \beta_7 X_2 * Z + \beta_8 X_3 * Z + \beta_9 X_4 * Z + \epsilon$ <b>Where:</b> Y is Performance Z is Information Technology $\beta_0$ is a constant $\beta_1, \beta_2, \beta_4$ & $\beta_3$ are regression coefficients $\epsilon$ is the error term	$R^2$ to assess whether there is a significant change in performance due to moderation of information technology. The slope coefficient was significant if the p value was less than $P \leq 0.05$ . The change in $R^2$ gives the explanatory power of the moderating effect of information technology.

### **3.10 Regression Assumptions**

Classical regression analysis is based on assumptions such as normality of error term, linearity of independent and dependent variable, homoscedasticity of error term and independence of error term. The aforementioned assumptions were tested using the following tests prior to regression analysis.

#### **3.10.1 Linearity Test**

Linearity assumptions assumes that dependent and independent variables have linear relationship. This assumption purports that each independent variable has positive or inverse influence on the dependent variable. Scatter plots were adopted to test for linearity between study variables.

#### **3.10.2 Normality Test**

Normality test assumes that error term is normally distributed or study variables under examination are normally distributed. There are several tests which may be adopted to test for normality they include Kolmogorov-Smirnov, Jarque-Berra test amongst others. In addition, graphical methods such as Q-Q plots, PP plots, stem and leaf, box plots and histograms may be adopted to test for normality. Normality tests assumes that the data is normally distributed against an alternative that the data will not be normally distributed. The null hypothesis is rejected at 5% level of significance and if p value  $< 0.05$ , then the data is not normally distributed and data transformation ought to be carried out to normalize the data. Currently histogram was adopted to test for normality.

#### **3.10.3 Multicollinearity**

Although, classical regression analysis assumes that there is no relationship between independent variables. This assumption is violated whenever independent variables are collinear. It's mostly tested using tolerance limits and variance inflation factors (VIF). In case, tolerance limits are less than 0.1 or VIFs is greater than 10. Then there is multicollinearity and need to drop at least one those highly correlated variables or respecify multiple regression model (Wooldridge, 2013).

#### **3.10.4 Homoscedasticity**

Further, it's assumed that error term has uniform variance within the period under examination. There are situations in which the variance is not constant and may yield large standard errors and small t statistics leading to biased conclusions. Homoscedasticity was tested using Breusch-Pagan test which assumes uniformity of error term variance against non-uniform variance. If p value is less than 0.05, then there is no uniform variance and need to use robust standard errors or fixed generalized least squares (FGLS) (Wooldridge, 2013).

#### **3.10.5 Autocorrelation**

Classical regression analysis assumes that there is independence of error terms. This was tested using Durbin Watson (DW) statistics. According to Wooldridge (2013) there is no serial correlations if DW ranges between 1.5 to 2.5, if greater than 2.5 there was negative autocorrelation and if less than 1.5 there is positive autocorrelation. If there is serial correlation, then the most appropriate model to fit is Fixed Generalized Least Squares (FGLS).

## CHAPTER FOUR

### FINDINGS AND DISCUSSIONS

#### 4.1 Introduction

This section presents study findings drawn from data analyzed through use of descriptive and inferential statistics. Response rate was presented, then pilot analysis, followed by back ground information, exploratory factor analysis, and correlation and regression analysis. The analysis was carried out in line with study objectives which were to examine the influence of strategic sourcing, strategic contract management, strategic staff skills, strategic planning on performance of water and sewerage companies in Kenya. In addition, moderating effect of information technology on the influence of strategic procurement practices on performance of public water and sewerage companies was evaluated. Study findings are presented in figures and tables.

#### 4.2 Response Rate

Out of 150 issued questionnaires only 139 were completely filled and returned. They constituted a response rate of 93%, this response was commendable since Kothari (2011) that in social sciences a response rate of at least 70% is good and if it at least 80% then its excellent.

**Table 4.1: Response Rate**

<b>Questionnaire</b>	<b>Frequency</b>	<b>Percentage</b>
Returned	139	93
Non-returned	11	7
<b>Total</b>	<b>150</b>	<b>100</b>

#### 4.3 Pilot Analysis

Prior to the actual study research instrument was piloted to test its appropriateness in meeting study objectives. From piloting reliability and validity were examined with

the former adoption Cronbach's Alpha and the latter used Kaiser Mayer and Bartlett's test.

#### 4.3.1 Reliability Analysis

Study findings in Table 4.2 revealed that all items in the questionnaire had Cronbach Alpha coefficients greater than 0.7. This shows that the research instrument was reliable. Strategic sourcing had coefficient of 0.753, strategic contract management had 0.798, strategic staff training had 0.856, strategic procurement planning had 0.826, information technology had 0.951 and performance had 0.868. Consequently, the research instrument was adopted in the study.

**Table 4.2: Reliability Analysis**

<b>Variables</b>	<b>Number of items</b>	<b>Cronbach's Alpha</b>	<b>Comments</b>
Strategic Sourcing	8	0.753	Accepted
Strategic Contract Management	9	0.798	Accepted
Strategic Staff Training	9	0.856	Accepted
Strategic Procurement Planning	7	0.826	Accepted
Information Technology	6	0.951	Accepted
Performance	8	0.868	Accepted

#### 4.3.2 Validity Analysis

Validity analysis was examined using KMO and Bartlett's test. The duo tested the causality of attributes adopted in the study. As shown in Table 4.3, KMO coefficient range between 0 and 1 and the acceptable threshold is 0.5 and it exceed 0.7 then it's good. KMO coefficient was 0.642 and Bartlett's test of sphericity had chi square value of 6036.578 and p value of 0.00. Since the p value was less than 0.05, then the attributes under examination could be examined through EFA.



**Table 4.3: KMO and Bartlett's Test**

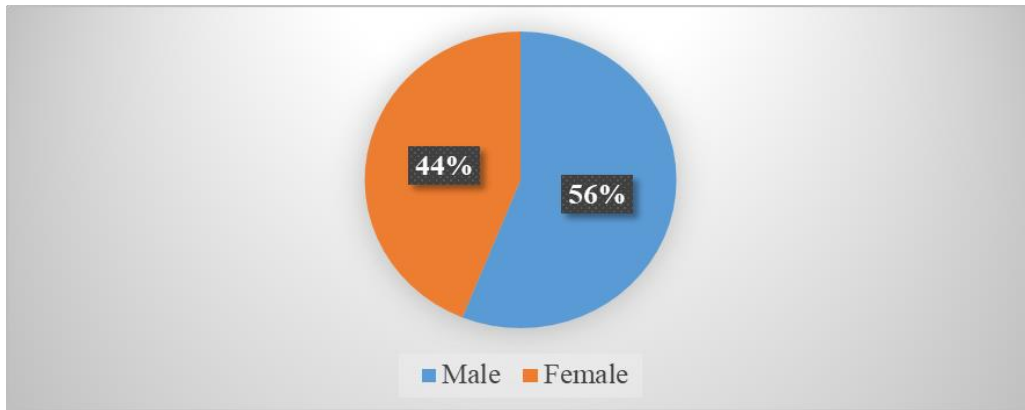
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.641
Bartlett's Test of Sphericity	Approx. Chi-Square	6036.57
	df	8
	Sig.	1081
		0.000

#### **4.4 Background Information**

Background information of the respondents was sought, it includes gender, highest level of education, age, period in the current position, membership in professional body and specific professional body registered. Since, the variables are in nominal scale, frequency and percentage were applied for data analysis and findings presented in figures and tables.

##### **4.4.1 Gender**

Findings in Figure 4.1 revealed that 56% of the respondents were male and 44% were female. This shows that procurement profession is skewed towards male. Dominance of male in public procurement is line with (Gyan, 2013) who argued that there is a tendency for managerial position to be occupied mostly by female worldwide. The distribution of these position was commendable since it complied with constitution requirements on two third gender rule since none of them was below a third.



**Figure 4.1: Gender**

#### **4.4.2 Highest Level of Education**

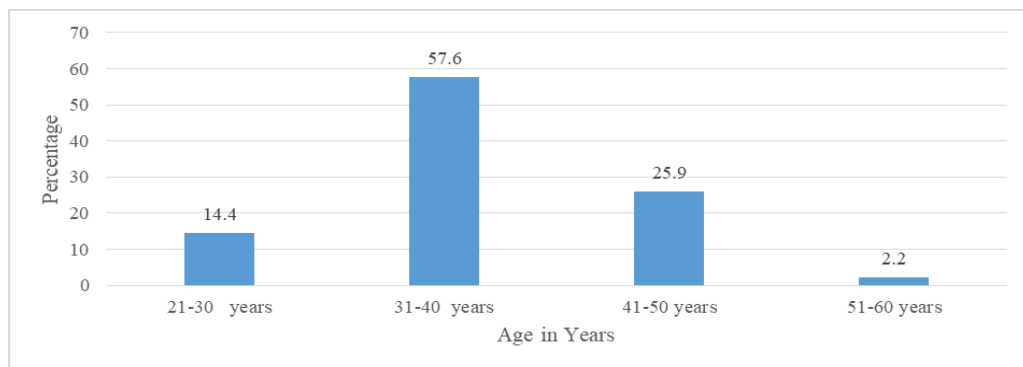
Acquisition of formal training would aid an organization in implementation of strategic polices. Results in Table depicted that majority 44.6% of respondents were degree holders, 27.3% were masters and 16.5% were diploma holders. Through the formal skills water companies in Kenya would easily hold customized programs aimed at sensitization of employee development as per procurement requirements. These results would be in line Abdow, Wario and Odhiambo (2018) who asserted that there is need for acquisition of formal training among employees so that they can act as agent of strategic leadership and organization change.

**Table 4.4: Highest Level of Education**

<b>Highest Level of Education</b>	<b>Frequency</b>	<b>Percent</b>
Professional qualification	13	9.4
Diploma	23	16.5
Degree	62	44.6
Masters	38	27.3
Doctorate	3	2.2
<b>Total</b>	<b>139</b>	<b>100</b>

### 4.4.3 Age

Age distribution among employees is crucial in adoption of strategic plans. This is because the older generation may be more equipped with informal skills as compared to young people who are technologically empowered. The combination of the two would aid an organization in achievement of its organization goals and objectives. Results in Figure 4.2 indicated that majority 57.6% of the respondents were aged between 31 to 40 years, followed by 25.9% who aged between 41 to 50 years and 14.4% who aged from 21 to 30 years.



**Figure 4.2: Age**

### 4.4.4 Period Served in the Current Position

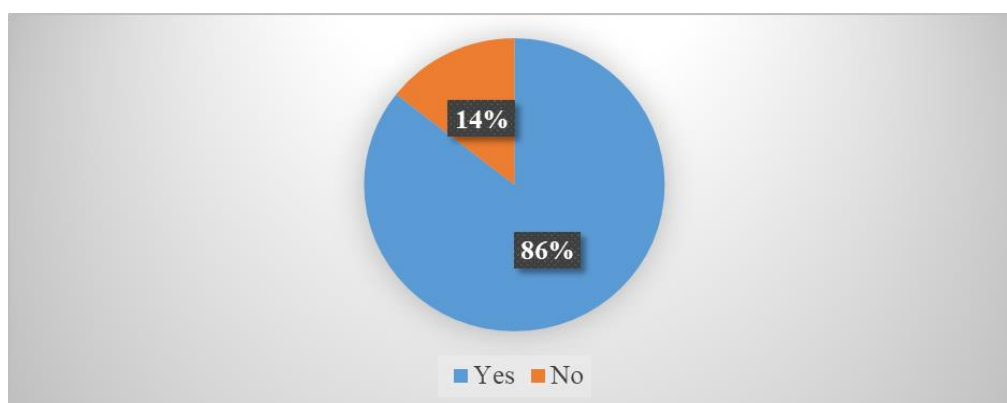
Period served in current position would indicate the experience an employee has acquired in the industry. Results shown in Table 4.5 revealed that most 50.4% has served in their current position for a period of between 6 to 10 years, followed by 29.5% of whom who have served between 11 to 15 years and 18% has served for less than 5 years. This shows that most employees working in public water companies has served for at least six years a clear indication they have acquired organization skills that may be adopted in determination of organization strategic needs.

**Table 4.5: Period Served in the Current Position**

<b>Period served in the current position</b>	<b>Frequency</b>	<b>Percent</b>
Less than 5 years	25	18
Between 6 and 10 years	70	50.4
Between 11 and 15 years	41	29.5
Over 20 years	3	2.2
<b>Total</b>	<b>139</b>	<b>100</b>

#### **4.4.5 Professional Body Registration**

Professional bodies are formed so as to inoculate professional ethics in conduct of its members. Moreover, professional bodies are mandated to carry out continuous professional development programs that are aimed at empowering its membership. Results in Figure 4.3 revealed that 86% of respondents were members of professional bodies. This shows that those serving in water companies in Kenya were acquitted with requisite skills that would be crucial in determination of strategic procurement needs.



**Figure 4.3: Professional Body Registration**

#### **4.4.6 Professional Body Membership**

There are several professional bodies governing procurement experts in Kenya. Results in Table 4.6 revealed that 39.6% of respondents were members of Kenya Institute of Suppliers Management (KISM), followed by 34.5% CIPS members and

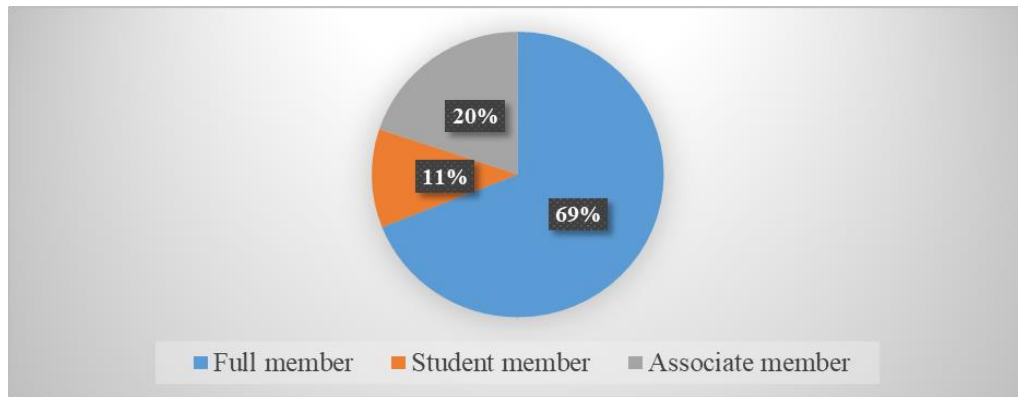
16.5% of ICPAK. Owing to heterogeneity of professional membership then there was diversity of skills and professional development.

**Table 4.6: Professional Body Membership**

	<b>Responses</b>	<b>Percent of Cases</b>
KISM	55	39.6%
CIPS	48	34.5%
ICPAK	23	16.5%

**4.4.7 Professional Body Membership Status**

There are variations in professional body membership status. Results in Figure 4.4 revealed that 69% are full members, 20% were associate members and 11% were student members. Since, most respondents were full members then they were bound to uphold high levels of professional ethics as guided by respective professional body.



**Figure 4.4: Professional Body Membership Status**

**4.5 Descriptive Statistics**

Descriptive statistics is meant to describe the data set. There are different measures of descriptive statistics; they include central tendency measures such as mean, dispersion measures such as standard deviation and distribution such as Skewness and kurtosis. In this study frequency, percentage, mean and standard deviation were adopted.

#### **4.5.1 Descriptive Statistics on Strategic Sourcing**

The first objective established the effect of strategic sourcing on performance of public water and sewerage companies in Kenya. Results in Table 4.7 indicates that majority 48.9% strongly agreed and 39.6% agreed that they have collaborative business environment with their suppliers. Majority 51.8% strongly agreed and 33.8% agreed that they have created optimal cost allocation during procurement. Thirdly, majority 36.7% agreed and 28.8% strongly agreed that they have improved intra and inter team work and communication.

Further, majority 41.7% agreed and 22.3% neither agreed nor disagreed that they have fostered business networking among suppliers. Majority 43.9% agreed and 27.3% strongly agreed that they have improved quality of service provision. There is improved joint understanding among suppliers' stakeholders as indicated by 56.8% who agreed and 26.6% who strongly agreed. Public water companies have improved efficiency in the procurement cycle as indicated by 41.8% who agreed and 38.8% who disagreed. Majority 43.9% agreed and 34.5% strongly agreed that they have enhanced procurement specifications courtesy of outsourcing. On overall majority agreed that strategic sourcing influence performance of public water companies in Kenya.

It must be recognized that public companies are not necessarily meant for profit and their major roles is to take part in the promise by national government to provide affordable water unlike the private limited companies that are in the business to make profit. These findings are in tandem with Thawiwinyu and Laptaned, (2009) who discovered that influence of internal coordination, strategic elevations and creation of long-term relationship with suppliers on profit making organization to be significant as well. However, the results could not be relied on fully since it involved profit oriented companies and also did not report- or perhaps did not perform diagnosis test hence could have led to biased results. Odhiambo (2013) study of manufacturing multinational companies in Kenya on the same subject revealed a positive and significant influence. On the same basis, generalizing for public companies would have amplified biasness where multinationals have profit as their major goals and

public are meant to alleviate social needs. It should be noted that multinationals could also have a borrowed strategic sourcing culture from their host countries. This was reiterated by Nyagari et al., (2014).

**Table 4.7: Descriptive Statistics on Strategic Sourcing**

	n=139					Me an	Std. Dev
	SD	D	N	A	SA		
Have created collaborative business environment with our suppliers	2.9	2.2	6.5	39.6	48.9	4	1
Have created optimal cost allocation during procurement	0	3.6	10.8	33.8	51.8	4	1
Have improved intra and inter teamwork and communication	2.2	8.6	23.7	36.7	28.8	4	1
Have fostered business networking amongst suppliers	7.9	13.7	22.3	41.7	14.4	4	1
Have improved our quality of service provisions	6.5	10.1	12.2	43.9	27.3	4	1
Have improved our joint understanding of procurement stakeholders.	2.2	0.7	13.7	56.8	26.6	4	1
Have created efficiency in procurement cycle	2.9	2.2	15.1	41	38.8	4	1
Have enhanced procurement specifications	0.7	2.9	18	43.9	34.5	4	1
<b>Overall average</b>						<b>4</b>	<b>1</b>

*\*SD-Strongly Disagree, D-Disagree, N-Neutral, A-Agree, SA- Strongly Agree*

#### 4.5.2 Descriptive Statistics on Strategic Contract Management

The second objective of the study determined the influence of strategic contract management on performance of public water and sewerage companies in Kenya. Results in Table 4.8 revealed that majority 46% agreed and 31.7% strongly agreed that due to strategic contract management they have created harmonious service delivery among stakeholders. Secondly, majority 48.9% agreed and 30.2% strongly agreed that they have created supplier cooperation platform. Thirdly, majority 30.2% agreed and 35.3% strongly agreed and 15.8% neither agreed nor disagreed that they have created mutual understanding amongst all stakeholders.

There was elimination of surprises and disruption during service delivery as accounted by 35.3% agreed and 33.1% strongly agreed. Further, majority 44.6% strongly agreed and 22.3% agreed that they have enhanced suppliers' compliance with procedures during strategic contract management. Majority agreed (mean =4), that they have created incentives for ongoing procurement performance improvement, have minimized misunderstanding among stakeholders, has led to adherence to procurement guiding principles and has led to contract development plans due to strategic contract management. On overall majority agreed that strategic contract management has influence on performance of public water companies in Kenya (mean = 4, standard deviation = 1).

Human capital development is one interpreted as sense of concern for the employees and their growth and two as sign of commitment to what employee can offer and hence a change of attitude towards management and the company as a whole. A reiteration by Ethiopian study of foot ware producing companies by Tessema (2015) discovered that human capital development always yield positive performance. In line to this, Chigoize et al., (2018) in Nigeria says that firms need to allocate resources for their staff development for increased motivation and great performance emanating from learning to do things in different ways.



**Table 4.8: Descriptive Statistics on Strategic Contract Management**

	n=139					Mean	Std. Dev
	SD	D	N	A	SA		
Have created harmonious service delivery amongst stakeholders	2.2	10.8	9.4	46	31.7	4	1
Have created of supplier cooperation platform	2.9	5	12.9	48.9	30.2	4	1
Have created mutual understanding of all stakeholders	5.8	12.9	15.8	30.2	35.3	4	1
Have eliminated surprises and disruption during service delivery	5.8	5	20.9	35.3	33.1	4	1
Have enhanced supplier's compliance on procurement procedures	7.3	3.5	22.3	22.3	44.6	4	1
Have created incentives for ongoing procurement performance improvement	3.6	10.1	15.1	53.2	18	4	1
Have minimized misunderstanding among stakeholders	0.7	11.5	7.9	36	43.9	4	1
Have led to adherence to procurement guiding principles	4.3	4.3	7.9	43.2	40.3	4	1
Have led to development of contract management plan	5	7.2	7.2	49.6	30.9	4	1
<b>Overall average</b>						<b>4</b>	<b>1</b>

### 4.5.3 Descriptive Statistics on Strategic Staff Training

The third objective of the study analyzed the effect of strategic staff training on performance of public water and sewerage companies in Kenya. Results in Table 4.9 indicates that majority agreed (mean = 4) that training has clarified procurement policies in public water companies, their staffs have professional development targets per annum, through training employees' roles and responsibilities are clarified and courtesy of strategic staff training they have called for achievement of certain procurement professional qualification skills. Majority 54% strongly agreed and 40.3% agreed that coaching programs improves staff skills.

Majority 49.6% strongly agreed and 37.4% agreed that training creates an opportunity for creativity and innovation in public water companies. Further, majority 54% strongly agreed and 38.1% agreed that public water companies have

succession plans amongst their employees. Employees in public water companies are grouped as per their specialties as indicated by 53.2% who strongly agreed and 30.9% agreed. Majority 51.8% agreed and 27.3% strongly agreed that through staff trainings there are able to develop annual procurement training program. On overall majority agreed that strategic staff skills had influence on performance of public water companies in Kenya (mean = 4, standard deviation = 1).

Human capital development is one interpreted as sense of concern for the employees and their growth and two as sign of commitment to what employee can offer and hence a change of attitude towards management and the company as a whole. A reiteration by Ethiopian study of footwear producing companies by Tessema (2015) discovered that human capital development always yield positive performance. In line to this, Chigoize et al. (2018) in Nigeria says that firms need to allocate resources for their staff development for increased motivation and great performance emanating from learning to do things in different ways.

Training is not in vain for any firm that chooses to sharpen their skills and techniques of handling and processing services and products (Khakayi, 2016). Many organizations may perceive training as insignificance even leading to a cut in budget for it in their book account especially when finances are limited. Ultimately, this would wound quality of services rendered. Khakayi (2016) noted that training feedback are significant when it comes to staff operating in public university. It also emerges that staff training give an edge in this era of competition where placements have gone down. Osoro (2016) joins by advocating for value of training which goes further to strengthen the motivation of employees working in Narok County. Alike Osoro, Wanyonyi and Muturi (2015) claims that continuous procurement staff training improves together in ensure growth and efficiency on their operations.

**Table 4.9: Descriptive Statistics on Strategic Staff Training**

	n=139					Mean	Std. Dev
	SD	D	N	A	SA		
Training has clarified procurement policies and guidelines in our organization	3.6	7.2	24.5	36	28.8	4	1
Our staffs have professional development targets per annum	0.7	3.6	10.8	48.2	36.7	4	1
Staff training has clarified employees' roles and responsibilities	0.7	3.6	13.7	38.1	43.9	4	1
There is a call for achievement of certain procurement professional qualifications skills	0	2.9	15.8	44.6	36.7	4	1
Coaching programs improves staff skills	2.2	0	3.6	40.3	54	4	1
Training creates opportunity for creativity and innovation in our organization	1.4	2.2	9.4	37.4	49.6	4	1
Our organization has succession plan amongst procurement staffs	0.7	2.9	4.3	38.1	54	4	1
Our employees are grouped according to their specialties	0	4.3	11.5	30.9	53.2	4	1
Staffs training aids in preparation of annual procurement training program	2.2	9.4	9.4	51.8	27.3	4	1
<b>Overall average</b>						<b>4</b>	<b>1</b>

#### 4.5.4 Descriptive Statistics on Strategic Procurement Planning

The fourth objective established the influence of strategic procurement planning on performance of public water and sewerage companies in Kenya. Findings in Table 4.10, indicates that majority 41% agreed and 22.3% strongly agreed that procurement is undertaken as per budgetary allocations. Secondly, majority 38.8% strongly agreed and 34.5% agreed that proper planning eliminates budgetary deficits. Majority 46.8% agreed and 38.8% strongly agreed that in public water companies in Kenya departmental needs are assessed continuously.

It was agreed 43.2% and 37.4% strongly agreed that public water company's procurement department executes market capacity assessment. Majority agreed mean = 4, that in public water companies in Kenya all departments are encouraged to

prepare goods and services utilization matrix, they assess funds assessment prior to procurement and through planning all procurement activities are accounted for. On overall majority (mean = 4, standard deviation = 1) agreed that strategic procurement planning has influence on performance of public water companies in Kenya.

Nzau and Njeru (2014) study of factors influencing performance for the public universities hailing from Nairobi found that failure on procurement planning process was outright way that would lead to a decline in performance. Even so, the result of Nzau and Njeru cannot be generalized to water companies since they are in different regulatory framework, justifying why this research was necessary. In 2015, Baseka et al., also attempted to develop the role of procurement planning on firm performance. Their results were no different but went ahead to emphasis need for planning not only enhance performance but to be in position to explain how resources of the firm have been spent over time.

Further, in Nigeria a study by Anabaj (2015) posits that procurement planning forms the bottom line under which the assessment of the entire procurement department can be assessed. Anabah adds that without a plan it would be hard to gauge the performance of individuals firms since by comparing to others may be wrong since it's tricky to have like with like comparison. Firm that look alike would in particular be having different level of assets and liabilities. This also bring out the reason why the result of any study would be interpreted with caution when judging the entire sector or industry.

**Table 4.10: Descriptive Statistics on Strategic Procurement Planning**

	n=139					Mean	Std. Dev
	SD	D	N	A	SA		
Procurement is undertaken as per budgetary allocations	5.8	11.5	19.4	41	22.3	4	1
Proper planning eliminates budgetary deficits	6.5	10.1	10.1	34.5	38.8	4	1
Departmental needs and assessment are continuously evaluated	2.2	0.7	11.5	46.8	38.8	4	1
Procurement department executes market capacity assessment	2.9	2.9	13.7	43.2	37.4	4	1
All departments are encouraged to prepare goods and services utilization matrix	0.7	3.6	15.8	41	38.8	4	1
Funds assessments are executed prior to procurement	2.2	10.8	12.2	37.4	37.4	4	1
All purchases are accounted for through planning	2.9	7.9	11.5	36.7	41	4	1
<b>Overall average</b>						<b>4</b>	<b>1</b>

#### 4.5.5 Descriptive Statistics on Information Technology

The fifth objective of the study examined moderating effect of information technology on influence of strategic procurement practices on performance of public water and sewerage companies. Results in Table 4.11, indicates that majority 37.4% agreed and 29.5% strongly agreed that they have reliable E-procurement software in their firms. Through E tendering majority 37.4% agreed and 41% strongly agreed that through it they have eased procurement paperwork. Majority neither agreed nor disagreed that paperless requisition has saved on procurement review time. Majority agreed (mean = 4) that E-procurement has reduced the lead time, it's interlinked with payment portals and it has created coherent procurement information.

The last objective of the study sought to establish the moderating effect of information technology on procurement management on performance of public water companies in Kenya. Here application of IT was assessed by critical checks of there was information flow in the water companies and the way the clients and the companies are relying on e-tendering and e-payment systems availed by the company. IT was indeed was found to moderate the effect procurement management

practices for public water companies in Kenya since all significance influence was found on all the aforementioned four variables.

More often than not, technology adoption is attributed to great performance even without fact on the ground to assessing this. This study discovered that for sure adoption of information technology have a direct impact on performance. Wensink and Vet (2013) avers that technology as tools assists procurement to be done in transparency, flexibility, on time and accessible to all. For procurement an electronic platform is a way to eliminate corruption which is an attempt to transfer illegally firm wealth to individual(s) pocket. Technology put everything into openness that would defeat any mischievous dealing depending on the way it has been adopted and relied upon by the firm (Wensink & Vet, 2013).

Even with praises of the e-procurement, there are challenges in its adoption as postulated by Makau (2014) case study of Nairobi Water and Sewerage Company. This is motivated by desire to defeat the ethics and acceptable standards of transparency hence the IT systems keep on going on and off. Nonetheless, Aman and Kasimin (2011) gives hopes that e-procurement for the government entities still works for positive and significant performance.

**Table 4.11: Descriptive Statistics on Information Technology**

	n=139					Mean	Std. Dev
	SD	D	N	A	SA		
Reliable E-procurement software has been adopted	8.6	15.1	9.4	37.4	29.5	4	1
E-tendering has eased paper work	5.8	6.5	9.4	37.4	41	4	1
Paperless requisition has saved on procurement review time	12.9	24.5	18.7	15.8	28.1	3	1
E-procurement has reduced lead time	5.8	6.5	12.2	44.6	30.9	4	1
E-procurement is interlinked with payment portals	2.9	4.3	5	39.6	48.2	4	1
There is coherent procurement information courtesy of E-procurement	6.5	4.3	9.4	35.3	44.6	4	1
<b>Overall average</b>						<b>4</b>	<b>1</b>

#### 4.5.6 Descriptive Statistics on Water Company Performance

Descriptive analysis on water company performance in Table 4.12 revealed that majority 30.9% agreed and 26.6% strongly agreed that their quality-of-service provision has improved. Secondly, 34.5% strongly agreed and 27.3% agreed that there offers timely provision of services. Majority, 41% agreed and 13.7% disagreed that there has reduced spillage of water. Further, majority (mean = 4) agreed that they incur low maintenance and repair costs, they respond faster to customer queries, they are able to offer efficient and reliable billing services, they have increased their revenue and they have reduced spillage of sewerage.

**Table 4.12: Descriptive Statistics on Water Company Performance**

	n=139					Mean	Std. Dev
	SD	D	N	A	SA		
Our quality-of-service provision has improved	5	7.9	29.5	30.9	26.6	4	1
We offer timely provision of services	3.6	5	29.5	27.3	34.5	4	1
We have reduced spillage of water	6.5	13.7	19.4	41	19.4	4	1
We incur low maintenance and repair costs	6.5	26.6	17.3	23	26.6	4	1
We respond faster to customer queries	5	8.6	10.8	52.5	23	4	1
We offer reliable and efficient customer billing	7.2	7.2	5	46	34.5	4	1
We have increased revenue from service provision	6.5	10.8	10.8	44.6	27.3	4	1
We have reduced spillage of sewerage	7.2	15.1	12.9	43.2	21.6	4	1
<b>Overall average</b>						<b>4</b>	<b>1</b>

#### 4.5.7 Trend Analysis on Water Company Performance

An examination of trend analysis since 2014 to 2018 was carried out to evaluate percentage changes in revenue, number of customers, number of employees and capital investment. Results in Table 4.13 indicates that revenue of water companies increased on average by 5 to 10 percent for 57.6% of water companies in Kenya, number of employees had similar growth for 67.7%, 37.4% of water companies

increased their employees by the same percentage. In the year 2018 the highest change in revenue for most water companies exceeded 10%, indicated by 54.7% of companies, 41% of water companies increased their customers by more than 10%, 42.4% increased their employees and capital investment by more than 10 percent respectively.

**Table 4.13: Trend Analysis on Water Company Performance**

Year	% Change in	Revenue	Number of Customers	Number of employees	Capital Investment
	<5%	25.9	17.3	28.8	36
	5%-10%	57.6	67.6	37.4	53.2
2014	>10%	16.5	15.1	33.8	10.8
	<5%	23.7	15.1	25.2	27.3
	5%-10%	58.3	59.7	41.7	41.7
2015	>10%	18	25.2	33.1	30.9
	<5%	16.5	16.5	25.2	31.7
	5%-10%	45.3	48.2	23	28.8
2016	>10%	38.1	35.3	51.8	39.6
	<5%	14.4	7.2	23.7	25.9
	5%-10%	34.5	43.2	31.7	30.9
2017	>10%	51.1	49.6	44.6	43.2
	<5%	10.8	12.9	30.9	30.9
	5%-10%	34.5	46	26.6	26.6
2018	>10%	54.7	41	42.4	42.4

#### 4.6 Exploratory Factor Analysis

Exploratory Factor Analysis (EFA) was carried out to examine factor loadings. Through EFA the extent of interconnection among attributes under consideration can be examined. According to Kothari (2014) those attributes whose factor loadings are less than 0.32 are perceived to have poor loading, between 0.33 and 0.45, they have fair loading, between 0.46 and 0.55 good loading and above 0.55 they have excellent loading. Since most attributes in the study has factors loading more than 0.55 then there were retained in subsequent analysis in the study.



#### 4.6.1 Exploratory Factor Analysis on Strategic Sourcing

Results shown in Table 4.14 indicates that the highest factor loading was 0.894 for improved quality services provision, followed by 0.841 for creation of optimal cost allocation during procurement, followed by 0.831 for creation of collaborative business environment with our suppliers and the least improved intra and inter team work communication with factor loadings of 0.709.

**Table 4.14: Exploratory Factor Analysis on Strategic Sourcing**

	<b>Factor Loading</b>
Have created collaborative business environment with our suppliers	0.831
Have created optimal cost allocation during procurement	0.842
Have improved intra and inter teamwork and communication	0.709
Have forced business networking amongst suppliers	0.802
Have improved our quality-of-service provisions	0.894
Have improved our joint understanding of procurement stakeholders.	0.716
Have created efficiency in procurement cycle	0.757
Have enhanced procurement specifications	0.809

#### 4.6.2 Exploratory Factor analysis on Strategic Contract Management

Findings in Table 4.15 depicts that the highest factor loading for strategic contract management was 0.848 for creation of incentives for ongoing procurement performance improvement followed by 0.834 for led to adherence to procurement guiding principles and the least was 0.652 for creation of supplier cooperation platform.

**Table 4.15: Exploratory Factor Analysis on Strategic Contract Management**

	<b>Factor Loading</b>
Have created harmonious service delivery amongst stakeholders	0.741
Have created of supplier cooperation platform	0.652
Have created mutual understanding of all stakeholders	0.748
Have eliminated surprises and disruption during service delivery	0.765
Have enhanced supplier's compliance on procurement procedures	0.712
Have created incentives for ongoing procurement performance improvement	0.848
Have escalated misunderstanding among stakeholders	0.821
Have led to adherence to procurement guiding principles	0.834
Have led to development of contract management plan	0.798

#### **4.6.3 Exploratory Factor Analysis on Strategic Staff Training**

Results in Table 4.16 indicates that the highest factor loading among strategic staff training attributes was 0.862 for attributes that employees are grouped according to their specialties followed by 0.861 that coaching skill enhances staff skills and 0.831 for that staffs have professional development targets per annum and the last was that staff training has clarified their roles and responsibilities (0.707).

**Table 4.16: Exploratory Factor Analysis on Strategic Staff Training**

	<b>Factor Loading</b>
Training has clarified procurement policies and guidelines in our organization	0.711
Our staffs have professional development targets per annum	0.831
Staff training has clarified employees' roles and responsibilities	0.707
There is a call for achievement of certain procurement professional qualifications skills	0.725
Coaching programs improves staff skills	0.861
Training creates opportunity for creativity and innovation in our organization	0.743
Our organization has succession plan amongst procurement staffs	0.738
Our employees are grouped according to their specialties	0.862
Staffs training aids in preparation of annual procurement training program	0.745

#### 4.6.4 Exploratory Factor Analysis on Strategic Procurement Planning

Results in Table 4.17 depicts that the highest factor loadings for attributes on strategic procurement planning was 0.79 for departmental needs and assessments are continuously evaluated, followed by 0.728 that all departments are encouraged to prepare goods and services utilization matrix and 0.725 that funds assessments are executed prior to procurement.

**Table 4.17: Exploratory Factor Analysis on Strategic Procurement Planning**

	<b>Factor Loading</b>
Procurement is undertaken as per budgetary allocations	0.649
Proper planning eliminates budgetary deficits	0.703
Departmental needs and assessment are continuously evaluated	0.79
Procurement department executes market capacity assessment	0.659
All departments are encouraged to prepare goods and services utilization matrix	0.728
Funds assessments are executed prior to procurement	0.725
All purchases are accounted for through planning	0.680

#### 4.6.5 Exploratory Factor Analysis on Information Technology

EFA factor loadings for information technology attributes in Table 4.18 indicates that the highest factor loading was 0.819 that E-procurement has reduced lead time, followed by 0.757 that E-tendering has eased paper work and the least was 0.595 for E-procurement is interlinked with payment portals.

**Table 4.18: Exploratory Factor Analysis on Information Technology**

	<b>Factor Loading</b>
Reliable E-procurement software has been adopted	0.696
E-tendering has eased paper work	0.757
Paperless requisition has saved on procurement review time	0.72
E-procurement has reduced lead time	0.819
E-procurement is interlinked with payment portals	0.595
There is coherent procurement information courtesy of E-procurement	0.694

#### 4.6.6 Exploratory Factor Analysis on Performance

Results in Table 4.19, indicates that the highest factor loading for the attributes of performance was 0.841 on attributes that they respond faster to customer queries followed by 0.744 for offering reliable and efficient customer billing and 0.717 for reduced spillage of sewerage.

**Table 4.19: Exploratory Factor Analysis on Performance**

	<b>Factor loading</b>
Our quality-of-service provision has improved	0.735
We offer timely provision of services	0.7
We have reduced spillage of water	0.667
We incur low maintenance and repair costs	0.671
We respond faster to customer queries	0.841
We offer reliable and efficient customer billing	0.744
We have increased revenue from service provision	0.683
We have reduced spillage of sewerage	0.717

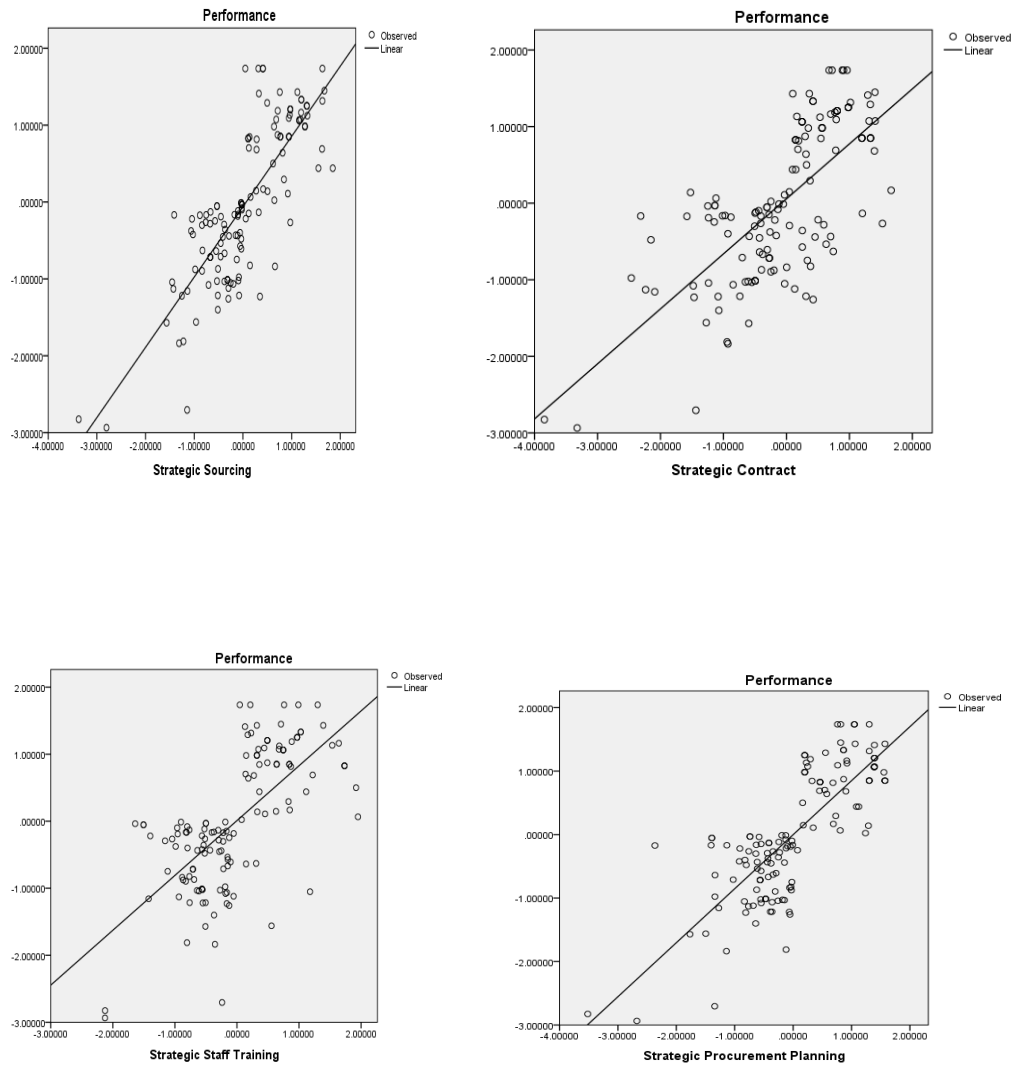
#### 4.7 Regression Diagnostic Tests

Classical regression modelling is anchored on assumptions for linearity, multicollinearity, serial correlation, heteroskedasticity and normality. Hence, diagnostic tests were carried out prior to modelling, linearity was tested through scatter plots, normality through histogram, multicollinearity using variance inflation factors and tolerance limits, heteroskedasticity through use of Breusch Pagan tests and serial correlation through use of Durbin Watson test statistics.

##### 4.7.1 Linearity Test

Pictorial presentation in Figure 4.5 revealed that there was positive association between strategic sourcing and performance of public water companies. Secondly, strategic contract management influenced performance of public water companies positively. Thirdly, strategic staff skills influenced public water company's

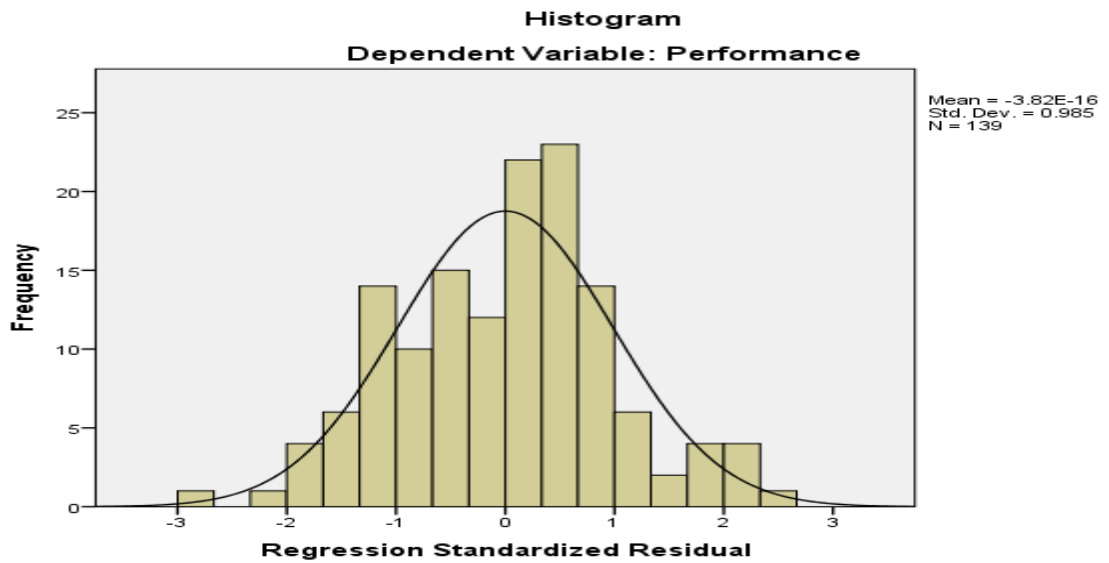
performance positively. Strategic procurement planning had positive influence on performance of public water companies in Kenya.



**Figure 4.5: Linearity Test**

### 4.7.2 Normality Test

Normality test in Figure 4.6 revealed that the data was normally distributed and there was need for transformation since the mean of the error term was zero and standard deviation 1.



**Figure 4.6: Normality Test**

### 4.7.3 Multicollinearity

Independent variables are said to be collinear whenever there is strong association between them. Findings in Table 4.20, revealed that there was no collinearity on strategic sourcing, strategic contract management, strategic staff training and strategic procurement planning since none of them had VIF greater than 5 or tolerance limits less than 0.1.

**Table 4.20: Multicollinearity**

	Collinearity Statistics	
	Tolerance	VIF
Strategic Sourcing	0.295	3.39
Strategic Contract Management	0.449	2.227
Strategic Staff Training	0.483	2.069
Strategic Procurement Planning	0.3	3.33

#### 4.7.4 Heteroscedasticity

Regression modelling assumes that there is uniformity of the error terms. Study findings on Breusch-Pagan/Cook-Weisberg test are presented in Table 4.21. Since the p value was less than 0.05, then there was no enough evidence to warrant rejection of the null hypothesis and consequently it can be concluded that there was uniform variance of the error terms.

**Table 4.21: Heteroscedasticity**

Test Statistics	Value	P value
F statistics	15.21	0.0032

#### 4.7.5 Serial Correlation

Serial correlation was tested through use of Durbin Watson test statistics. Results in Table 4.22, indicates absence of serial correlation since DW coefficient was within the range of 1.5 to 2.5.

**Table 4.22: Serial Correlation**

Durbin-Watson	1.765
---------------	-------

#### 4.8 Correlation Analysis

Product moment correlation coefficient was applied to examine strength of association between independent and dependent variables. Results in Table 4.23, revealed that there was strong positive and significant association between strategic sourcing and performance of public water companies in Kenya ( $\rho = 0.809$ ,  $p$  value  $< 0.05$ ). Secondly, there was strong, positive and significant association between strategic contract management and performance of public water companies ( $\rho = 0.704$ ,  $p$  value  $< 0.05$ ). Strategic staff training had strong, positive and significant association with performance of public water companies in Kenya ( $\rho = 0.673$ ,  $p$  value  $< 0.05$ ). Strategic procurement practices had strong, positive and significant association with performance of public water companies in Kenya ( $\rho = 0.791$ ,  $p$

value < 0.05). Information technology was positively associated with performance of public water companies in Kenya ( $\rho = 0.770$ ,  $p$  value < 0.05). There was no collinearity since none of the independent variables was highly related with each other and none of their respective correlation coefficient exceeded 0.7.

**Table 4.23: Correlation Analysis**

		Performance	Strategic Sourcing	Strategic Contract Management	Strategic Staff Training	Strategic Procurement Planning	Information Technology
Performance	Pearson						
	Correlation	1	.809**	.704**	.673**	.791**	.770**
	Sig. (2-tailed)		0.000	0.000	0.000	0.000	0.000
	N		139	139	139	139	139
Strategic Sourcing	Pearson						
	Correlation		1	.298**	.390**	.196**	.206**
	Sig. (2-tailed)			0.000	0.000	0.000	0.000
	N			139	139	139	139
Strategic Contract Management	Pearson						
	Correlation			1	.541**	.108**	.252**
	Sig. (2-tailed)				0.000	0.000	0.000
	N				139	139	139
Strategic Staff Training	Pearson						
	Correlation				1	.371**	.216**
	Sig. (2-tailed)					0.000	0.000
	N					139	139
Strategic Procurement Planning	Pearson						
	Correlation					1	.445**
	Sig. (2-tailed)						0.000
	N						139
Information Technology	Pearson						
	Correlation						1

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



## **4.9 Hypothesis Testing**

Hypothesis of the study were tested using regression analysis. The level of significance used in the study was 0.05.

### **4.9.1 Strategic Sourcing and Performance of Public Water and Sewerage Companies in Kenya**

The first hypothesis stated strategic sourcing had no significant influence on performance of public water and sewerage companies in Kenya. Results in Table 4.24, has an R squared of 0.655 that indicates that 65.5% of changes in performance of public water companies can be explained by strategic sourcing while the remaining percentage can be accounted by other factors excluded from the model.

ANOVA results has an F statistic of 259.97, p value <0.05, that indicates significant association between strategic sourcing and performance of public water companies in Kenya. Strategic sourcing has positive and significant influence on performance of public water companies in Kenya ( $\beta = 0.914$ ,  $t = 16.124$ , p value < 0.05). This implies that unit increase in strategic sourcing increases performance of water companies by 0.914 units.

The study sought to determine the influence of strategic sourcing on performance of public water and sewerage companies in Kenya. Strategic sourcing was operationalized by the way suppliers are selected, evaluated and developed while performance was measured by reliability and affordability of service rendered and service to customer. The results from the correlation analysis shows there exist a strong and positive correlation between the two variables. Further, this was confirmed by the regression results that showed positive significant influence of strategic sourcing on water companies' performance in Kenya. This led to rejection of null hypothesis.

A bivariate analysis by Chiang et al., (2012) noted that strategic sourcing has a direct impact on performance. However, Cheng et al., analysis comprised of quantitative data hence need to include a qualitative element to optimize by way of allowing

more description for in depth understanding as was done in this study. Kihanya, Wafula, Onditi and Munene (2015) too studied role of strategic sourcing on JKUAT performance where the findings revealed strategic sourcing as enabler for strategic advantage whilst business condition and problem can be eased in a more efficient and effective manner.

Failure of strategic source can thus be attributed to poor planning, in adherence to the plans and lack of adequate funding. In sourcing for goods and services, quality and their cost are essential to have a competitive advantage. Department must be keen in budget preparation as well as ensure that all operations are within the range set by budget and funds allocated (Kihanya et al., 2015). Therefore, it can be deduced that the intent of strategic sourcing lies on the desire to improve customer satisfaction and in provision of good and service effectively and efficiently.

$$Y = -0.061 + 0.914(2)$$

$$\text{Performance} = -0.061 + 0.914 * \text{Strategic Sourcing} \dots \dots \dots (4.1)$$

**Table 4.24: Regression Analysis on Influence of Strategic Sourcing and Performance of Public Water and Sewerage Companies in Kenya**

<b>Model Summary</b>						
<b>R</b>	<b>R Square</b>	<b>Adjusted R Square</b>	<b>Std. Error of the Estimate</b>			
0.809	0.655	0.652	0.589604			
<b>ANOVA</b>						
	<b>Sum of Squares</b>	<b>Df</b>	<b>Mean Square</b>	<b>F</b>	<b>Sig.</b>	
Regression	90.374	1	90.374	259.97	0.000	
Residual	47.626	137	0.348			
Total	138	138				
<b>Coefficients</b>						
<b>Unstandardized Coefficients</b>						
	<b>B</b>	<b>Std. Error</b>	<b>Standardized Coefficients Beta</b>	<b>t</b>	<b>Sig.</b>	
(Constant)	-0.061	0.05		-1.22	0.224	
Strategic Sourcing	0.914	0.057	0.809	16.124	0.000	

#### **4.9.2 Strategic Contract Management and Performance of Public Water and Sewerage Companies in Kenya**

The second hypothesis stated strategic contract management had no significant influence on performance of public water and sewerage companies in Kenya. Results in Table 4.25, has an R squared of 0.496, which indicates that 49.6% of changes in performance of public water companies can be explained by strategic contract management while the remaining percentage can be accounted by other factors excluded from the model.

ANOVA results has an F statistic of 134.88, p value <0.05, that indicates significant influence strategic contract management on performance of public water and sewerage companies in Kenya. Strategic contract management has positive and significant influence on performance of public water companies in Kenya ( $\beta = 0.718$ ,  $t = 11.614$ , p value < 0.05). This implies that unit increase in strategic contract management increases performance of water and sewerage companies by 0.718 units.

The study aimed to document influence of the strategic contract management on performance of public water companies in Kenya. Strategic contract management was measured by reviewing water companies monitoring and evaluation tools, contract implementation and internal control checks that were available. Bivariate analysis showed positive and significance influence of contract management on performance of the water companies under investigation. The null hypothesis of no significance was rejected in favor of the alternative hypothesis.

In the same spirit, Maria (2013) found that performance in procurement dependent positively on contract management. Even though Maria incorporates both concept of qualitative gathered using questionnaire and quantitative data from company's statements, it could have given more exploratory if interview and focus group discussions to cement their primary instruments findings. In Ghana, Synyenlentu (2014) document that having openness in application of supply of chemical for water company played a major role in ensuring transparency which help the companies to perform well as to the standard.

$$\text{Performance} = 0.056 + 0.718 * \text{Strategic Contract Management} \dots \dots \dots (4.2)$$

**Table 4.25: Regression Analysis on Influence of Strategic Contract Management and Performance of Public Water and Sewerage Companies in Kenya**

<b>Model Summary</b>						
<b>R</b>	<b>R Square</b>	<b>Adjusted R Square</b>	<b>Std. Error of the Estimate</b>			
0.704	0.496	0.492	0.712444			
<b>ANOVA</b>						
	<b>Sum of Squares</b>	<b>df</b>	<b>Mean Square</b>	<b>F</b>	<b>Sig.</b>	
Regression	68.462	1	68.462	134.88	0.000	
Residual	69.538	137	0.508			
Total	138	138				
<b>Coefficients</b>						
	<b>Unstandardized Coefficients</b>		<b>Standardized Coefficients</b>		<b>t</b>	<b>Sig.</b>
	<b>B</b>	<b>Std. Error</b>	<b>Beta</b>			
(Constant)	0.056	0.061			0.928	0.355
Strategic Contract Management	0.718	0.062	0.704		11.614	0.000

### **4.9.3 Strategic Staff Training and Performance of Public Water and Sewerage Companies in Kenya**

The third hypothesis stated strategic staff skills had no significant influence on performance of public water and sewerage companies in Kenya. Results in Table 4.26, has an R squared of 0.453, which indicates that 45.3% of changes in performance of public water companies can be explained by strategic staff skills while the remaining percentage can be accounted by other factors excluded from the model.

ANOVA results has an F statistic of 113.298, p value <0.05, that indicates significant influence of strategic staff skills and performance of public water and sewerage companies in Kenya. Strategic staff skills have positive and significant influence on performance of public water companies in Kenya ( $\beta = 0.818$ ,  $t = 10.644$ , p value < 0.05). This implies that unit increase in strategic staff skills increases performance of water companies by 0.818 units.

An analysis of the influence of strategic staff training on performance of public water and sewerage companies in Kenya was sought via the third objectives. Staff training was metricized by checking the skills, professionalism and staff development. Both regression and correlation analysis indicated a positive and significant influence of strategic staff training on water companies' performance. The null hypothesis of no significance was thus reject implying the latter. Similarly, Ndumbi and Okello (2014) exploratory study established that staff training has great positive impact on the procurement performance of state corporations in Kenya.

Barsemoi et al., (2014) echoes the same, in study of Henkel Chemicals in Kenya where staff training and development are found to positively affect procurement performance. Barsemoi add that training serves as sharpener to the skills and knowledge already at hand and therefore for career and work growth staff need to be trained not only to equip them but to remind them the basic which forms the fundamental in procurement processes. Alisafe et al., (2015) too avers that improvement in human capital always yields positivity in how employees see things and thus helping they pay keen attention ultimately improving the organization performance. Training further, create a form of job security that encourage and motivates staff to be more commitment in their duties.

$$\text{Performance} = 0.009 + 0.818 * \text{Strategic Staff Skills} \dots\dots\dots (4.3)$$

**Table 4.26: Regression Analysis on Influence of Strategic Staff Training and Performance of Public Water and Sewerage Companies in Kenya**

<b>Model Summary</b>						
<b>R</b>	<b>R Square</b>		<b>Adjusted R Square</b>	<b>Std. Error of the Estimate</b>		
0.673	0.453		0.449	0.742525		
<b>ANOVA</b>						
	<b>Sum of Squares</b>	<b>Df</b>	<b>Mean Square</b>	<b>F</b>	<b>Sig.</b>	
Regression	62.466	1	62.466	113.298	0.000	
Residual	75.534	137	0.551			
<b>Total</b>	<b>138</b>	<b>138</b>				
<b>Coefficients</b>						
	<b>Unstandardized Coefficients</b>		<b>Standardized Coefficients</b>	<b>t</b>	<b>Sig.</b>	
	<b>B</b>	<b>Std. Error</b>	<b>Beta</b>			
(Constant)	0.009	0.063		0.145	0.885	
Strategic Staff Training	0.818	0.077	0.673	10.644	0.000	

#### **4.9.4 Strategic Procurement Planning and Performance of Public Water and Sewerage Companies in Kenya**

The four-hypothesis stated strategic procurement planning had no significant influence on performance of public water and sewerage companies in Kenya. Results in Table 4.27, has an R squared of 0.625 that indicates that 62.5% of changes in performance of public water companies can be explained by strategic procurement planning while the remaining percentage can be accounted by other factors excluded from the model.

ANOVA results has an F statistic of 228.534, p value <0.05, that indicates significant influence of strategic procurement planning and performance of public water companies in Kenya. Strategic procurement planning has positive and significant influence on performance of public water and sewerage companies in Kenya ( $\beta = 0.851$ ,  $t = 15.117$ , p value < 0.05). This implies that unit increase in strategic

procurement planning increases performance of water and sewerage companies by 0.851 units.

The fourth objective sought to establish the strategic procurement planning on performance of public water and sewerage companies in Kenya. Procurement planning was indicated by checking availability of annual planning, procurement methods and approvals adopted by the water companies. Bivariate analysis between strategic procurement planning and water and sewerage companies' performance also had positive and significant influence. The statement of no significance was thus refuted. This agrees with what was postulated by Sharma in 2013 that good leadership always come up with good plans that when implement they would direct lead to rewards for the firms in terms of performance. Also, Chengetich (2018) study of Kericho County government found that procurement planning as essential and basis on which all other expenditures are based.

$$\text{Performance} = -0.002 + 0.851 * \text{Strategic Procurement Planning} \dots\dots\dots (4.4)$$

**Table 4.27: Regression Analysis on Influence of Strategic Procurement Planning and Performance of Public Water Companies in Kenya**

<b>Model Summary</b>					
<b>R</b>	<b>R Square</b>	<b>Adjusted R Square</b>	<b>Std. Error of the Estimate</b>		
0.791	0.625	0.622	0.614435		
<b>ANOVA</b>					
	<b>Sum of Squares</b>	<b>df</b>	<b>Mean Square</b>	<b>F</b>	<b>Sig.</b>
				228.53	
Regression	86.278	1	86.278	4	0.0000
Residual	51.722	137	0.378		
<b>Total</b>	<b>138</b>	<b>138</b>			
<b>Coefficients</b>					
	<b>Unstandardized Coefficients</b>		<b>Standardized Coefficients</b>	<b>t</b>	<b>Sig.</b>
	<b>B</b>	<b>Std. Error</b>	<b>Beta</b>		
(Constant)	-0.002	0.052		-0.039	0.969
Strategic Procurement Planning	0.851	0.056	0.791	15.117	0.0000

#### **4.9.5 Influence of Strategic Procurement Practices on Performance of Public Water and Sewerage Companies in Kenya**

Multiple regression analysis was adopted to examine the influence of strategic procurement practices on performance of public water companies in Kenya. Results in Table 4.28, indicates an R squared of 0.736, this shows that 73.6% of changes performance of public water companies can be jointly explained by strategic sourcing, strategic contract management, strategic staff training and strategic procurement planning. ANOVA results has an F statistic of 93.281, p value <0.05,



that indicates significant influence of strategic procurement practices and performance of public water and sewerage companies in Kenya.

Strategic sourcing has positive and significant influence on performance of public water and sewerage companies in Kenya ( $\beta = 0.419$ ,  $t = 4.539$ ,  $p \text{ value} < 0.05$ ). This implies that unit increase in strategic sourcing increases performance of water and sewerage companies by 0.419 units while holding strategic contract management, strategic staff skills and strategic procurement planning.

Strategic contract management has positive and significant influence on performance of public water and sewerage companies in Kenya ( $\beta = 0.175$ ,  $t = 2.596$ ,  $p \text{ value} < 0.05$ ). This implies that unit increase in strategic contract management increases performance of water and sewerage companies by 0.175 units while holding strategic sourcing, strategic staff skills and strategic procurement planning.

Strategic staff skills have positive and significant influence on performance of public water and sewerage companies in Kenya ( $\beta = 0.162$ ,  $t = 2.081$ ,  $p \text{ value} < 0.05$ ). This implies that unit increase in strategic staff skills increases performance of water and sewerage companies by 0.162 units while holding strategic sourcing, strategic contract management and strategic procurement planning.

Strategic procurement planning has positive and significant influence on performance of public water and sewerage companies in Kenya ( $\beta = 0.306$ ,  $t = 3.51$ ,  $p \text{ value} < 0.05$ ). This implies that unit increase in strategic staff skills increases performance of water and sewerage companies by 0.306 units while holding strategic sourcing, strategic contract management and strategic staff skills.

Overall, the researcher sought to uniquely advise on how use of strategic procurement practices has influenced running of Water Company and whether any impact has been felt in their service provisions. Strategic procurement practices are many and the study concentrated on strategic sourcing, contract management, staffing and plans for the procurement department. A multivariate analysis employed proved existed of significance influence of strategic procurement practices on public water companies' performance. As previously held, it can be deduced that strategic

procurement practices significantly influence the performance of water companies in Kenya.

Past works on the same subjects in other sectors have validate the positive and significance results. Alike that of Wanjiru, Kiarie and Marendi (2018) whose study of Nyandarua county government concluded the importance of maintaining good buyer-supplier relationship for improved performance for the counties. Wanjiru et al., (2018) perceives strategic procurement practices are meant to saving costs, enhance operational effectiveness, access to trusted suppliers, and enhance the quality of product or service, sharing of best practices amongst others. Mueni and Moronge (2018) study of Kenya Airport Authority (KAA) discovered that procurement practices as assessed by the strategic outsourcing, inventory management, reverse logistics, and knowledge management explain the performance of KAA by far.

Performance = -0.013 + 0.419\*Strategic Sourcing + 0.175\*Strategic Contract Management + 0.162\*Strategic Staff Training + 0.306\*Strategic Procurement Planning. ....4.5

**Table 4.28: Influence of Strategic Procurement Practices on Performance of Public Water and Sewerage Companies in Kenya**

<b>Model Summary</b>					
<b>R</b>	<b>R Square</b>	<b>Adjusted R Square</b>	<b>Std. Error of the Estimate</b>		
0.858	0.736	0.728	0.521653		
<b>ANOVA</b>					
	<b>Sum of Squares</b>	<b>df</b>	<b>Mean Square</b>	<b>F</b>	<b>Sig.</b>
Regression	101.536	4	25.384	93.281	.000
Residual	36.464	134	0.272		
<b>Total</b>	<b>138</b>	<b>138</b>			
<b>Coefficients</b>					
	<b>Unstandardized Coefficients</b>	<b>Standardized Coefficients</b>	<b>t</b>	<b>Sig.</b>	
	<b>B</b>	<b>Std. Error</b>	<b>Beta</b>		
(Constant)	-0.013	0.045		-0.293	0.77
Strategic Sourcing	0.419	0.092	0.371	4.539	0.000
Strategic Contract Management	0.175	0.068	0.172	2.596	0.01
Strategic Staff Training	0.162	0.078	0.133	2.081	0.039
Strategic Procurement Planning	0.306	0.087	0.284	3.51	0.001

#### **4.10 Moderating Effect of Information Technology on the Relationship between Strategic Procurement Practices and Performance of Public Water and Sewerage Companies in Kenya**

To examine moderating effect of interaction of each independent variable and information technology was included as predictor of performance of public water and sewerage companies in Kenya. Similar approach was adopted by past empirical studies such as Wairimu, Muturi and Olouch (2019); Wanjau, Muturi and Ngumi (2018), Maende, Wario, Odhiambo and Muchiri (2019).

#### **4.10.1 Moderating Effect of Information Technology on the Relationship between Strategic Sourcing and Performance of Public Water and Sewerage Companies in Kenya**

Results in table 4.29 indicates that 0.729 (72.9%) of changes in performance of public water and sewerage companies in Kenya can be accounted for by strategic sourcing, information technology and moderated strategic sourcing (SS\*IT) while the remaining percentage can be accounted for by other factors not included in the model. The influence was significant as indicated by F statistics = 121.205, p-value = 0.000. Hence, at 5% level of significance we can claim that there was significant influence of strategic sourcing, information technology and SS\*IT.

Results indicates that strategic sourcing has positive and significant influence on performance of public water and sewerage companies in Kenya ( $\beta= 0.611$ ,  $t= 8.238$ ,  $p\text{-value} = 0.000$ ). This implies that unit increase in strategic sourcing while holding constant information technology, SS\*IT increases public water and sewerage company performance by 0.611 units. Information technology has positive and significant effect on performance of public water and sewerage company in Kenya ( $\beta= 0.473$ ,  $t= 5.992$ ,  $p\text{-value} = 0.000$ ). This implies that unit increase in information technology increases public water and sewerage companies' performance by 0.473 units while holding constant strategic sourcing and SS\*IT. Moderated strategic sourcing (SS\*IT) indicates positive and significant influence on performance of public water and sewerage companies in Kenya ( $\beta= 0.060$   $t= 2.400$ ,  $p\text{-value} = 0.000$ ). This implies that unit increase in SS\*IT increase public water and sewerage companies' performance by 0.060 units while holding constant strategic sourcing and information technology. To further, examine moderating effect of information technology marginal contribution was examined in line with (Githira, Muturi & Nasieku, 2019). Partial differential in respect to strategic sourcing and incorporation of average values for information technology as follows.

$$\frac{\partial P}{\partial SS} = \beta_1 + \beta_3 IT = 0.611 + 0.060 * 4 = 0.851.$$

Comparative analysis between moderated and non-moderated slope coefficients for strategic sourcing indicates that information technology has moderating effect on strategic sourcing (Performance = -0.061 + 0.914\*Strategic Sourcing). Since the marginal contribution is 0.85 compared to non-moderated coefficient of 0.914, then information technology has moderating effect on the influence of strategic sourcing on performance of public water and sewerage companies.

In analyses of e-procurement on the performance of major supermarket in Nairobi Munubi, Kinanga and Ondiba (2017) established that ICT is a tool of improving organization performance by saving time, cutting costs, testing frauds, corruption and record keeping for providing tracing transaction trails in order to increase transparency and accountability. In addition, Gardenal (2013) argues that implementation of e-procurement in public sector is more than technological challenge since it embodies to a large extent management shifts in their effort to create a more efficient procurement culture.

The resultant equation is of the form.

$$\text{Performance} = -0.092 + 0.611*SS + 0.473*IT + 0.060*SS*IT \dots\dots\dots 4.6$$

**Table 4.29: Moderating Effect of Information Technology on the Relationship between Strategic Sourcing and Performance of Public Water and Sewerage Companies in Kenya**

<b>Model Summary</b>					
<b>R</b>	<b>R Square</b>	<b>Adjusted R Square</b>	<b>Std. Error of the Estimate</b>		
0.854	0.729	0.723	0.5261		
<b>ANOVA</b>					
	<b>Sum of Squares</b>	<b>Df</b>	<b>Mean Square</b>	<b>F</b>	<b>Sig.</b>
Regression	100.636	3	33.545	121.20	0.000
Residual	37.364	135	0.277	5	0
<b>Total</b>	<b>138.00</b>	<b>138</b>			
<b>Coefficients</b>					
	<b>Unstandardized Coefficients</b>		<b>Standardized Coefficients</b>	<b>t</b>	<b>Sig.</b>
	<b>B</b>	<b>Std. Error</b>	<b>Beta</b>		
(Constant)	-0.092	0.050		-1.831	0.069
SS	0.611	0.074	0.541	8.238	0.000
IT	0.473	0.079	0.391	5.992	0.000
SS*IT	0.060	0.025	0.065	2.400	0.000

#### **4.10.2 Moderating Effect of Information Technology on the Relationship between Strategic Contract Management and Performance of Public Water and Sewerage Companies in Kenya**

Results in table 4.30 indicates that 0.638 (63.8%) of changes in performance of public water companies in Kenya can be accounted for by strategic contract management, information technology and moderated strategic contract management (SCM\*IT) while the remaining percentage can be accounted for by other factors not included in the model. The influence was significant as indicated by F statistics = 79.423, p-value = 0.000. Hence, at 5% level of significance we can claim that there was significant influence of strategic contract management, information technology and SCM\*IT.

Results indicates that strategic contract management has positive and significant influence on performance of public water and sewerage companies in Kenya ( $\beta= 0.325$ ,  $t= 3.980$ ,  $p\text{-value} = 0.000$ ). This implies that unit increase in strategic contract management while holding constant information technology, SCM\*IT increases public water and sewerage companies' performance by 0.325 units. Information technology has positive and significant effect on performance of public water and sewerage companies in Kenya ( $\beta= 0.690$ ,  $t= 7.215$ ,  $p\text{-value} = 0.000$ ). This implies that unit increase in information technology increases public water and sewerage companies' performance by 0.690 units while holding constant strategic contract management and SCM\*IT. Moderated strategic contract management (SCM\*IT) indicates positive and significant influence on performance of public water and sewerage companies in Kenya ( $\beta= 0.082$   $t= 2.828$ ,  $p\text{-value} = 0.000$ ). This implies that unit increase in SCM\*IT increase public water and sewerage companies' performance by 0.082 units while holding constant strategic contract management and information technology. To further, examine moderating effect of information technology marginal contribution was examined in line with (Githira, et al., 2019). Partial differential in respect to strategic contract management and incorporation of average values for information technology as follows.

$$\frac{\partial P}{\partial SCM} = \beta_1 + \beta_3 IT = 0.325 + 0.082 * 4 = 0.653.$$

Comparative analysis between moderated and non-moderated slope coefficients for strategic contract management indicates that information technology has moderating effect on strategic contract management (Performance =  $0.056 + 0.718 * \text{Strategic Contract Management}$ ). Since the marginal contribution is 0.653 compared to non-moderated coefficient of 0.718 then information technology has moderating effect on the influence of strategic contract management on performance of public water and sewerage companies.

Quesada et al., (2010) who posits that finding suggest that e-procurement usage positively affects managers' perceptions on both procurement practices and performance. Subsequently, this would have major impact on the way the

information flows to all employees and systems as enshrined in the company operations. A change in entirety of the organization definitely contributes to increased productivity. To sum up, IT can just be said to not to directly impact the performance but also enables other procurement practices to function for overall firm performance.

The resultant equation is of the form.

$$\text{Performance} = -0.053 + 0.325 \cdot \text{SCM} + 0.690 \cdot \text{IT} + 0.082 \cdot \text{SCM} \cdot \text{IT} \dots \dots \dots 4.7$$

**Table 4.30: Moderating Effect of Information Technology on the Relationship between Strategic Contract Management on Performance of Public Water and Sewerage Companies in Kenya**

<b>Model Summary</b>					
<b>R</b>	<b>R Square</b>	<b>Adjusted R Square</b>	<b>Std. Error of the Estimate</b>		
0.799	0.638	0.630	0.6080		
<b>ANOVA</b>					
	<b>Sum of Squares</b>	<b>Df</b>	<b>Mean Square</b>	<b>F</b>	<b>Sig.</b>
Regression	88.090	3	29.363	79.423	0.000
Residual	49.910	135	.370		
<b>Total</b>	<b>138</b>	<b>138</b>			
<b>Coefficients</b>					
	<b>Unstandardized Coefficients</b>		<b>Standardized Coefficients</b>	<b>t</b>	<b>Sig.</b>
	<b>B</b>	<b>Std. Error</b>	<b>Beta</b>		
(Constant)	-0.053	0.058		-0.899	0.370
SCM	0.325	0.082	0.319	3.980	0.000
IT	0.690	0.096	0.570	7.215	0.000
SCM*IT	0.082	0.029	0.106	2.828	0.000



### **4.10.3 Moderating Effect of Information Technology on the Relationship between Strategic Staff Training and Performance of Public Water and Sewerage Companies in Kenya**

Results in table 4.31 indicates that 0.625 (62.5%) of changes in performance of public water companies in Kenya can be accounted for by strategic staffing training, information technology and moderated strategic staff training (SST\*IT) while the remaining percentage can be accounted for by other factors not included in the model. The influence was significant as indicated by F statistics = 74.904, p-value = 0.000. Hence, at 5% level of significance we can claim that there was significant influence of strategic staff training, information technology and SST\*IT.

Results indicates that strategic staff training has positive and significant influence on performance of public water and sewerage companies in Kenya ( $\beta= 0.295$ ,  $t= 3.186$ ,  $p\text{-value} = 0.000$ ). This implies that unit increase in strategic staff training while holding constant information technology, SST\*IT increases public water companies' performance by 0.295 units. Information technology has positive and significant effect on performance of public water companies in Kenya ( $\beta= 0.730$ ,  $t= 7.817$ ,  $p\text{-value} = 0.000$ ). This implies that unit increase in information technology increases public water and sewerage companies' performance by 0.730 units while holding constant strategic staff training and SST\*IT. Moderated strategic staff training (SST\*IT) indicates positive and significant influence on performance of public water and sewerage companies in Kenya ( $\beta= 0.050$   $t= 2.746$ ,  $p\text{-value} = 0.000$ ). This implies that unit increase in SST\*IT increase public water companies' performance by 0.050 units while holding constant strategic staff training and information technology. To further, examine moderating effect of information technology marginal contribution was examined in line with (Githira, et al., 2019). Partial differential in respect to strategic staff training and incorporation of average values for information technology as follows.

$$\frac{\partial P}{\partial SST} = \beta_1 + \beta_3 IT = 0.295 + 0.05 * 4 = 0.495$$

Comparative analysis between moderated and non-moderated slope coefficients for strategic staff training indicates that information technology has moderating effect on strategic staff training (Performance = 0.009 + 0.818\*Strategic Staff Training). Since the marginal contribution is 0.495 compared to non-moderated coefficient of 0.818 then information technology has moderating effect on the influence of strategic staff training on performance of public water companies.

Challenges in power distribution led Okong'o (2016) to carry out a case study of Kenya power limited on the role of strategic procurement practices on the performance. Despite the procurement practices leading to positive organization performance, Kenya Power was found to experience a number of hurdles. Among them were disruption by technology, inadequate skills by the employees to carry out strategic procurement, failure by management get committed to strategic plan, weak governing policies and regulations. To add to that, cooperation and teamwork during implementation and corruption are also major hindrances.

Further, Muiruri and Bula, (2015) study of microfinance banks in Kenya on effect of strategic procurement strategies on performance raised a number of noteworthy issues. A need was found to customize employee training for every bank, incorporate all processes with IT and to encourage symbiotic relationship between supplier relationship and microfinance banks in Kenya. It was also discovered there was need to deal with bad organization culture, management style and government policy for efficient and increased procurement performance (Matindi & Ngugi, 2013).

The resultant equation is of the form.

$$\text{Performance} = -0.051 + 0.295 \cdot \text{SST} + 0.730 \cdot \text{IT} + 0.050 \cdot \text{SST} \cdot \text{IT} \dots \dots \dots 4.8$$

**Table 4.31: Moderating Effect of Information Technology on the Relationship between Strategic Staff Training and Performance of Public Water and Sewerage Companies in Kenya**

<b>Model Summary</b>					
<b>R</b>	<b>R Square</b>	<b>Adjusted R Square</b>	<b>Std. Error of the Estimate</b>		
0.790	0.625	0.616	0.6194		
<b>ANOVA</b>					
	<b>Sum of Squares</b>	<b>Df</b>	<b>Mean Square</b>	<b>F</b>	<b>Sig.</b>
Regression	86.208	3	28.736	74.904	0.000
Residual	51.792	135	.384		
<b>Total</b>	<b>138</b>	<b>138</b>			
<b>Coefficients</b>					
	<b>Unstandardized Coefficients</b>		<b>Standardized Coefficients</b>	<b>t</b>	<b>Sig.</b>
	<b>B</b>	<b>Std. Error</b>	<b>Beta</b>		
(Constant)	-0.051	0.062		-0.822	0.413
SST	0.295	0.093	0.242	3.186	0.000
IT	0.730	0.093	0.603	7.817	0.000
SST*IT	0.050	0.018	0.040	2.746	0.457

**4.10.4 Moderating Effect of Information Technology on the Relationship between Strategic Procurement Planning and Performance of Public Water and Sewerage Companies in Kenya**

Results in table 4.32 indicates that 0.701 (70.1%) of changes in performance of public water and sewerage companies in Kenya can be accounted for by strategic procurement planning, information technology and moderated strategic procurement planning (SPP\*IT) while the remaining percentage can be accounted for by other factors not included in the model. The influence was significant as indicated by F statistics = 105.258, p-value = 0.000. Hence, at 5% level of significance we can claim that there was significant influence of strategic procurement planning, information technology and SPP\*IT.

Results indicates that strategic procurement planning has positive and significant influence on performance of public water and sewerage companies in Kenya ( $\beta=$

0.528, t= 6.942, p-value = 0.000). This implies that unit increase in strategic procurement planning while holding constant information technology, SPP\*IT increases public water and sewerage companies' performance by 0.528 units. Information technology has positive and significant effect on performance of public water and sewerage companies in Kenya ( $\beta= 0.499$ , t= 5.815, p-value = 0.000). This implies that unit increase in information technology increases public water and sewerage companies' performance by 0.499 units while holding constant strategic procurement planning and SPP\*IT. Moderated strategic procurement planning (SPP\*IT) indicates positive and significant influence on performance of public water companies in Kenya ( $\beta= 0.038$  t= 2.866, p-value = 0.000). This implies that unit increase in SPP\*IT increase public water and sewerage companies' performance by 0.038 units while holding constant strategic procurement planning and information technology. To further, examine moderating effect of information technology marginal contribution was examined in line with (Githira, et al., 2019). Partial differential in respect to strategic procurement planning and incorporation of average values for information technology as follows.

$$\frac{\partial P}{\partial SPP} = \beta_1 + \beta_3 IT = 0.528 + 0.038 * 4 = 0.68$$

Comparative analysis between moderated and non-moderated slope coefficients for strategic procurement planning indicates that information technology has moderating effect on strategic procurement planning (Performance = -0.002 + 0.851\*Strategic Procurement Planning). Since the marginal contribution is 0.68 and compared to non-moderated coefficient of 0.851 then information technology has moderating effect on the influence of strategic procurement planning on performance of public water companies.

The resultant equation is of the form.

$$\text{Performance} = -0.044 + 0.528 * \text{SPP} + 0.499 * \text{IT} + 0.038 * \text{SPP} * \text{IT} \dots \dots \dots 4.9$$

**Table 4.32: Moderating Effect of Information Technology on the Relationship between Strategic Procurement Planning and Performance of Public Water and Sewerage Companies in Kenya**

<b>Model Summary</b>					
<b>R</b>	<b>R Square</b>	<b>Adjusted R Square</b>	<b>Std. Error of the Estimate</b>		
0.837	0.701	0.694	0.5533		
<b>ANOVA</b>					
	<b>Sum of Squares</b>	<b>Df</b>	<b>Mean Square</b>	<b>F</b>	<b>Sig.</b>
Regression	96.671	3	32.224	105.258	0.000
Residual	41.329	135	0.306		0
<b>Total</b>	<b>138</b>	<b>138</b>			
<b>Coefficients</b>					
	<b>Unstandardized Coefficients</b>		<b>Standardized Coefficients</b>	<b>t</b>	<b>Sig.</b>
	<b>B</b>	<b>Std. Error</b>	<b>Beta</b>		
(Constant)	-0.044	0.053		-0.818	0.415
SPP	0.528	0.076	0.490	6.942	0.000
IT	0.499	0.086	0.412	5.815	0.000
SPP*IT	0.038	0.044	0.041	0.866	0.388

#### **4.10.5 Multivariate Analysis on the Moderating effect of Information Technology on the Relationship between Strategic Procurement Practices and Performance of Public Water and Sewerage Companies in Kenya**

Results in table 4.33 indicates that 0.75 (75%) of changes in performance of public water and sewerage companies in Kenya can be accounted for by strategic sourcing, strategic contract management, strategic staff training, strategic procurement planning and information technology while the remaining percentage can be accounted for by other factors not included in the model. The influence was significant as indicated by F statistics = 80.07, p-value = 0.000. Hence, at 5% level of significance we can claim that there was significant influence of strategic sourcing, strategic contract management, and strategic staff training, strategic procurement planning and information technology.

Results indicates that strategic sourcing has positive and significant influence on performance of public water and sewerage companies in Kenya ( $\beta = 0.397$ ,  $t = 4.392$ ,  $p\text{-value} = 0.000$ ). This implies that unit increase in strategic sourcing while holding constant strategic staff training, strategic procurement planning and information technology increases public water and sewerage companies' performance by 0.397 units. Strategic contract management has positive and significant influence on performance of public water and sewerage companies in Kenya ( $\beta = 0.085$ ,  $t = 2.156$ ,  $p\text{-value} = 0.000$ ). This implies that unit increase in strategic contract management while holding constant strategic sourcing, strategic staff training, strategic procurement planning and information technology increases public water and sewerage companies' performance by 0.085 units.

Strategic staff training has positive and significant influence on performance of public water and sewerage companies in Kenya ( $\beta = 0.071$ ,  $t = 2.858$ ,  $p\text{-value} = 0.000$ ). This implies that unit increase in strategic staff training while holding constant strategic sourcing, strategic contract management, strategic procurement planning and information technology increases public water and sewerage companies' performance by 0.071 units. Strategic procurement planning has positive and significant influence on performance of public water and sewerage companies in Kenya ( $\beta = 0.259$ ,  $t = 2.992$ ,  $p\text{-value} = 0.000$ ). This implies that unit increase in strategic procurement planning while holding constant strategic sourcing, strategic contract management, strategic staff training and information technology increases public water and sewerage companies' performance by 0.259 units.

Information technology has positive and significant effect on performance of public water and sewerage companies in Kenya ( $\beta = 0.28$ ,  $t = 2.816$ ,  $p\text{-value} = 0.000$ ). This implies that unit increase in strategic procurement planning while holding constant strategic sourcing, strategic contract management, strategic staff training and strategic procurement planning increases public water and sewerage companies' performance by 0.28 units.

According to Kerich (2018) study of Safaricom Company on training impact performance within management and it was established that performance

management practices are promoted well whenever employees are retrained from time to time which further increases their productivity. Mbuthia (2018) also observes that learning organization concepts is necessary for commercial banks employees to help update on changes and new tactics for handling operations to help enlighten and realize loopholes where enemy may strike hard. Almost all the research work agree that training and retraining improve performance of the firm while at the same time inviting staff to contribute to the organization's mission, encouraging equal distribution of responsibilities and giving people choices in their work assignments (Mbuthia, 2018).

$$\text{Performance} = -0.031 + 0.397*SS + 0.085*SCM + 0.071*SST + 0.259*SPP + 0.28*IT \dots 4.10$$

**Table 4.33: Multivariate Analysis on the Moderating effect of Information Technology on the Relationship between Strategic Procurement Practices and Performance of Public Water and Sewerage Companies in Kenya**

<b>Model summary</b>					
<b>R</b>	<b>R Square</b>	<b>Adjusted R square</b>	<b>Std. Error of the Estimate</b>		
0.87	0.75	0.74	0.51		
<b>ANOVA</b>					
	<b>Sum of Squares</b>	<b>Df</b>	<b>Mean Square</b>	<b>F</b>	<b>Sig.</b>
Regression	103.59	5	20.72	80.07	0.00
Residual	34.41	133	0.26		
<b>Total</b>	<b>138</b>	<b>138</b>			
<b>Coefficients</b>					
<b>Unstandardized Coefficients</b>					
	<b>B</b>	<b>Std. Error</b>	<b>Standardized Coefficients Beta</b>	<b>t</b>	<b>Sig.</b>
(Constant)	-0.031	0.044		-0.706	0.48
SS	0.397	0.09	0.351	4.392	0.00
SCM	0.085	0.039	0.083	2.156	0.00
SST	0.071	0.025	0.058	2.858	0.00
SPP	0.259	0.087	0.241	2.992	0.00
IT	0.28	0.099	0.231	2.816	0.00

#### **4.10.6 Moderating Effect Information Technology on the Relationship between Strategic Procurement Practices and Performance of Public Water and Sewerage Companies in Kenya**

Results in table 4.34 indicates that 0.77 (77%) of changes in performance of public water and sewerage companies in Kenya can be accounted for by strategic sourcing, strategic contract management, strategic staff training, strategic procurement planning, information technology, moderated (SS\*IT, SCM\*IT, SST\*IT & SPP\*IT) while the remaining percentage can be accounted for by other factors not included in the model. The influence was significant as indicated by F statistics = 48.45, p-value = 0.000. Hence, at 5% level of significance we can claim that there was significant influence of strategic sourcing, strategic contract management, and strategic staff training, strategic procurement planning, information technology and moderated (SS\*IT, SCM\*IT, SST\*IT & SPP\*IT).

Results indicates that strategic sourcing has positive and significant influence on performance of public water and sewerage companies in Kenya ( $\beta= 0.413$ ,  $t= 4.645$ , p-value = 0.000). This implies that unit increase in strategic sourcing while holding constant strategic staff training, strategic procurement planning, information technology and moderated (SS\*IT, SCM\*IT, SST\*IT & SPP\*IT) increases public water companies' performance by 0.413 units. Strategic contract management has positive and significant influence on performance of public water and sewerage companies in Kenya ( $\beta= 0.136$ ,  $t= 2.834$ , p-value = 0.000). This implies that unit increase in strategic contract management while holding constant strategic sourcing, strategic staff training, strategic procurement planning, information technology and moderated (SS\*IT, SCM\*IT, SST\*IT & SPP\*IT) increases public water and sewerage companies' performance by 0.136 units.

Strategic staff training has positive and significant influence on performance of public water and sewerage companies in Kenya ( $\beta= 0.059$ ,  $t= 2.723$ , p-value = 0.000). This implies that unit increase in strategic staff training while holding constant strategic sourcing, strategic contract management, strategic procurement planning, information technology and (SS\*IT, SCM\*IT, SST\*IT & SPP\*IT)



increases public water and sewerage companies' performance by 0.059 units. Strategic procurement planning has positive and significant influence on performance of public water and sewerage companies in Kenya ( $\beta= 0.24$ ,  $t= 2.819$ ,  $p\text{-value} = 0.000$ ). This implies that unit increase in strategic procurement planning while holding constant strategic sourcing, strategic contract management, strategic staff training, information technology and moderated (SS\*IT, SCM\*IT, SST\*IT & SPP\*IT) increases public water and sewerage companies' performance by 0.24 units.

Information technology has positive and significant effect on performance of public water and sewerage companies in Kenya ( $\beta= 0.314$ ,  $t= 3.106$ ,  $p\text{-value} = 0.000$ ). This implies that unit increase in strategic procurement planning while holding constant strategic sourcing, strategic contract management, strategic staff training, strategic procurement planning and moderated (SS\*IT, SCM\*IT, SST\*IT & SPP\*IT) increases public water and sewerage companies' performance by 0.314 units. Information technology has positive and significant moderating effect on strategic sourcing ( $\beta = 0.224$ ,  $t= 2.084$ ,  $p\text{-value} = 0.00$ ), strategic contract management ( $\beta = 0.155$ ,  $t= 2.919$ ,  $p\text{-value} = 0.00$ ), strategic staff training ( $\beta = 0.199$ ,  $t= 2.838$ ,  $p\text{-value} = 0.000$ ) and strategic procurement planning ( $\beta= 0.016$ ,  $t= 2.173$ ,  $p\text{-value} = 0.000$ ). To confirm the moderating effect of information technology on strategic procurement practices. Partial differentiation with respect to each independent variable was carried out as shown from the following equation.

$$\text{Performance} = -0.11 + 0.413*SS + 0.136*SCM + 0.059*SST + 0.24*SPP + 0.314*IT + 0.224*SS*IT + 0.155*SCM*IT + 0.199*SST*IT + 0.016*SPP*IT \dots\dots\dots 4.11$$

$$\frac{\partial P}{\partial SS} = \beta_1 + \beta_6 IT = 0.413 + 0.224*4 = 1.309$$

$$\frac{\partial P}{\partial SCM} = \beta_2 + \beta_7 IT = 0.136 + 0.155*4 = 0.756$$

$$\frac{\partial P}{\partial SST} = \beta_3 + \beta_8 IT = 0.059 + 0.199*4 = 0.855$$

$$\frac{\partial P}{\partial SPP} = \beta_4 + \beta_9 IT = 0.24 + 0.016 * 4 = 0.304$$

Comparative analysis between moderated and non-moderated slope coefficients for strategic procurement planning indicates that information technology has moderating effect on strategic procurement planning (Performance= -0.031 + 0.397\*SS + 0.085\*SCM + 0.071\*SST+ 0.259\*SPP + 0.28\*IT). Since the marginal contribution changed to non-moderated coefficient of then information technology has moderating effect on the influence of strategic procurement practices on performance of public water companies.

Munyao and Moronge (2018) research on the impact of procurement practices including e-tendering, e-sourcing, e-ordering and e-payment on public university performance found a positive and significance results for all the variables except e-payment which had insignificance effect. The researchers urge that adoption of technology has gone further to reduce the transaction cost while at the same increasing the response speed implying that there is improved performance. This explains the positivity in moderating effect of IT on the procurement practices.

Kituzi (2016) siding with adoption of IT posts that tools such as e-procurement have great milestone in effecting performance especially on: reducing the time employees spend looking for a product, service or suitable supplier; in administration of purchases; cutting down cycle times; accelerating number of few preferred suppliers to get better pricing and other conditions; plus for quality reasons, helps to limit choices to only a number of pre-qualified suppliers.

Moreover, Kinuthia and Abdallah (2015) studied ICT adoption in procurement process in oil industry in Kenya where lead time reduced and quality improved were the most conspicuous results. However, the success of ICT adoption depended on operational compatibility and good relationship between suppliers and service seekers.

**Table 4.34: Moderating Effect of Information Technology on the Relationship between Strategic Procurement Practices and Performance of Public Water and Sewerage Companies in Kenya**

<b>Model Summary</b>					
<b>R</b>	<b>R Square</b>	<b>Adjusted R square</b>	<b>Std. Error of the Estimate</b>		
0.88	0.77	0.76	0.49		
<b>ANOVA</b>					
	<b>Sum of Squares</b>	<b>Df</b>	<b>Mean Square</b>	<b>F</b>	<b>Sig.</b>
Regression					
n	106.5	9	11.83	48.45	0.00
Residual	31.5	129	0.24		
<b>Total</b>	<b>138</b>	<b>138</b>			
<b>Coefficients</b>					
<b>Unstandardized Coefficients</b>					
	<b>B</b>	<b>Std. Error</b>	<b>Standardized Coefficients Beta</b>	<b>t</b>	<b>Sig.</b>
(Constant				-	
)	-0.11	0.051		2.163	0.00
SS	0.413	0.089	0.365	4.645	0.00
SCM	0.136	0.048	0.133	2.834	0.00
SST	0.059	0.022	0.048	2.723	0.00
SPP	0.24	0.085	0.223	2.819	0.00
IT	0.314	0.101	0.259	3.106	0.00
SS*IT	0.224	0.107	0.243	2.084	0.00
SCM*IT	0.155	0.053	0.2	2.919	0.00
SST*IT	0.199	0.07	0.161	2.838	0.00
SPP*IT	0.016	0.007	0.018	2.173	0.00

#### 4.10.7 Optimal Conceptual Framework

Ranking the strategic procurement practices, indicates that strategic sourcing has the highest influence on performance of public water companies, followed by strategic procurement planning, then strategic contract management and strategic staff training. Hence, the resultant optimal framework is as shown in Figure 4.7.

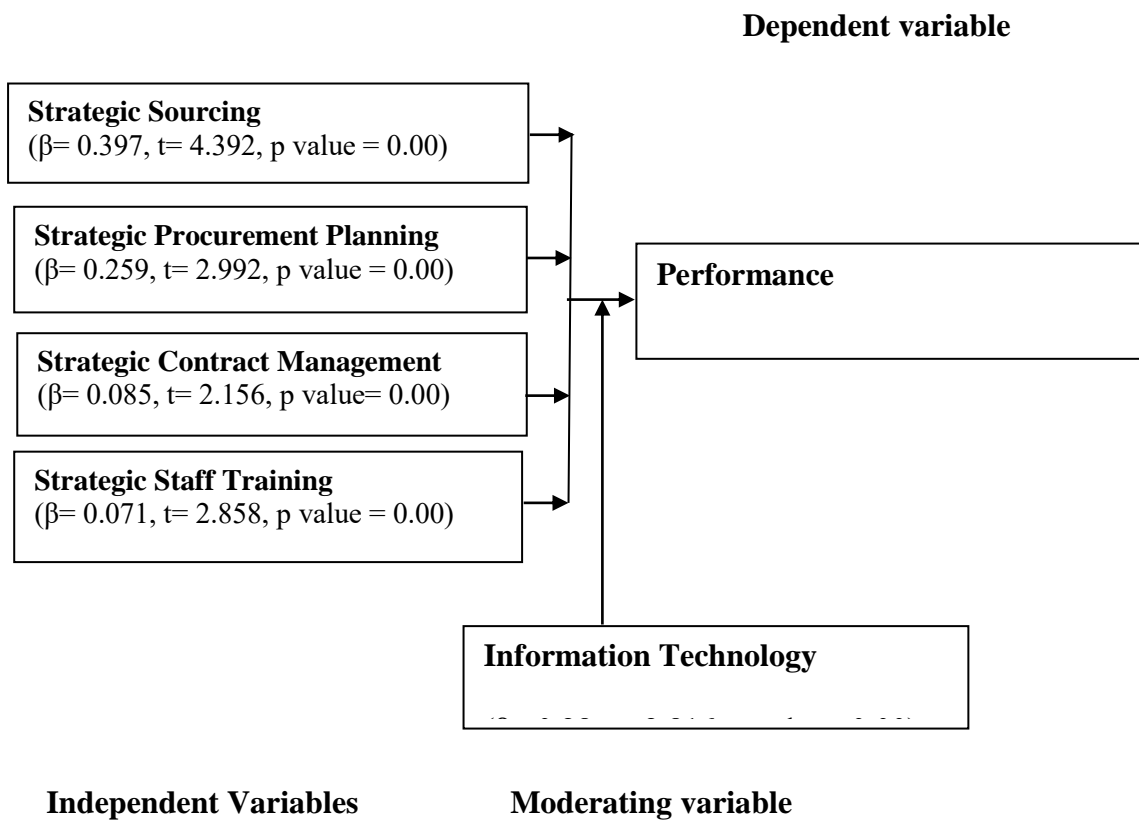


Figure 4.7: Optimal Conceptual Framework

## **CHAPTER FIVE**

### **SUMMARY, CONCLUSION AND RECOMMENDATIONS**

#### **5.1 Introduction**

This chapter presents summary of key findings, conclusions and recommendations. In addition, suggestions for further studies were presented.

#### **5.2 Summary of Findings**

The main objective of the study was to examine the influence of strategic capabilities on performance of water companies in Kenya. Specifically, the study examined the influence of strategic sourcing, strategic contract management, strategic staff training, strategic procurement and moderating effect of information technology on the influence of strategic procurement practices on performance of public water companies in Kenya. Descriptive research design was adopted and primary data gathered through questionnaires administration among procurement manager, finance manager and Chief Executive Officers. Quantitative data was analyzed through descriptive statistics, correlation and regression analysis.

##### **5.2.1 Strategic Sourcing and Performance**

The first objective of the study sought to establish the influence of strategic sourcing on performance of public water and sewerage companies in Kenya. Respondents' ratings on a five-point Likert scale were sought, the rating ranged from strongly disagree, disagree, neutral, agree and strongly agree. Descriptive statistics, correlation and regression modelling analyzed the data. Descriptive statistics revealed that majority agreed that to achieve strategic sourcing they have created collaborative business environment with suppliers, optimal cost allocation during procurement, have improved inter and intra team work and communication and have forced business networking amongst suppliers. Further, they agreed that they have improved quality of service provisions, have improved joint understanding among procurement stakeholders, have created efficiency in procurement cycle and they have enhanced procurement specifications.

Product Moment correlation coefficient indicated positive and significant influence of strategic sourcing on performance of public water and sewerage companies in Kenya. Regression modelling indicates that changes in performance of public water companies in Kenya can be explained by strategic sourcing. Strategic sourcing has positive and significant influence on performance of public water companies in Kenya. The results of the study match with strategic choice theory which advocates for participatory decision making while selecting suppliers, evaluating them and developing them in public corporations. There is need to source resources from suppliers who optimizes allocation of government scarce resources and aid in achievement of government social and economic goal.

### **5.2.2 Strategic Contract Management and Performance**

The second objective of the study examined the influence of strategic contract management on performance of public water and sewerage companies in Kenya. Respondents were requested to rate the influence of strategic contract management on a five-point Likert scale ranging from strongly disagree to strongly agree. Descriptive measures of central tendency and dispersion were adopted for data analysis. Majority of the respondents agreed that they have created harmonious service delivery among stakeholders, they have created supplier cooperation platform, they have mutual understanding among all stakeholders, they have eliminated surprises and disruption during service delivery.

Further majority agreed that they have enhanced suppliers' compliance with procurement procedures, they have created incentives for ongoing procurement performance improvement, they have minimized misunderstanding among stakeholders, have led to adherence to procurement guiding principles and they have led to development of contract management plan. Product moment correlation coefficient indicates positive and significant influence of strategic contract management on performance of public water companies. Regression modelling indicates that changes in performance of public water companies can be explained by strategic contract management. Strategic contract management has positive and significant influence on performance of public water companies in Kenya. The

results concur with stakeholders' theory which suggests that there is need to adopt contract management strategies which are geared towards monitoring and evaluating procurement resources in water sector and a clarification amongst all stakeholders on contractual implementation strategies which minimizes conflict and amplify communication of expected needs in the course of project implementation.

### **5.2.3 Strategic Staff Training and Performance**

The third objective of the study analyzed the influence of strategic staff training on performance of public water and sewerage companies in Kenya. Respondents rating on five-point Likert scale was examined with a scale ranging from strongly disagree to strongly agree. Study findings indicates that majority agreed that training has clarified procurement policies and guidelines in their organization, staffs have professional developments targets per annum, staff training has clarified employees' roles and responsibilities and there is call for achievement of certain procurement professional qualification skills.

Further, majority agreed that coaching programs improves their skills, training creates an opportunity for creativity and innovation in their organization, their organization has succession plan in their procurement department and staffs training aids in preparation of annual procurement training program. Product moment correlation coefficient indicates positive and significant influence of strategic staff training on performance of public water companies. Regression analysis indicates that of changes in performance of public water companies can be explained by strategic staff training. Strategic staff training has positive and significant influence on performance of public water companies in Kenya.

### **5.2.4 Strategic Procurement Planning and Performance**

The fourth objective sought to establish the effect of strategic procurement planning on performance of public water and sewerage companies in Kenya. Descriptive measures of central tendency and dispersion analyzed the data. Majority agreed that procurement is undertaken as per budgetary allocations, proper planning eliminates

budgetary deficits, departmental needs assessment is continuously evaluated and procurement department carried out capacity market assessment.

Moreover, majority agreed that all departments are encouraged to prepares goods and services utilization matrix, funds assessment are executed prior to procurement and all purchases are accounted for through planning. Product moment correlation coefficient indicated positive and significant association between strategic procurement planning and performance of public water companies. Regression analysis indicates that changes in performance of public water companies was explained by strategic procurement planning. According to resource-based view theory, procurement planning should be guided by budgetary guidelines, procurement method adopted and adherence to procurement approvals. Proper planning of resources minimizes pilferage of resources and maximize on social benefits anticipated from undertaking water-based projects.

### **5.2.5 Information Technology and Performance**

The fifth objective examined the moderating effect of information technology on the influence of strategic procurement practices on performance of public water and sewerage companies in Kenya. Descriptive statistics indicates that majority agreed that reliable E-procurement software has been adopted, E-tendering has eased paper work, E-procurement has reduced lead time, E-procurement is interlinked with payment portals and there is coherency of procurement information courtesy of E-procurement.

Product moment correlation indicates that there is a positive and significant association between information technology and performance of public water and sewerage companies in Kenya. Regression analysis indicates that information technology has positive and significant effect on performance of public water and sewerage companies in Kenya. Information technology has positive and significant moderating effect on strategic sourcing, strategic contract management, strategic staff training and strategic procurement planning. Technology, organization and environment model suggests that harmonious integration of information technology optimizes procurement practices benefits to be accrued by any organization.



### **5.3 Conclusion**

Since there is positive and significant influence of strategic sourcing and performance of public water companies in Kenya. Consequently, it can be concluded that creation of collaborative business environment, creation of optimal cost allocation during procurement, improved communication and team work, enhanced procurement specifications leads to improved service delivery, reduction in sewerage and water spillage and has enhance customer service provision and response time during complaints.

Strategic contract management has positive and significant influence on performance of public water companies in Kenya. Then it can be concluded that creation of harmonious delivery mechanism, creation of supplier cooperation platforms, mutual understanding of all stakeholders and elimination of surprises and disruption during service delivery enhances provision of quality services, timely provision of services, reduction of water spillage, enhance response to customers and have increased revenue from service provision.

Strategic staff training has positive and significant influence of performance of public water companies in Kenya. Consequently, it can be concluded that training clarifies procurement policies and guidelines in an organization, it enhances employee's professional development, creates a culture of innovation and creativity and aids in preparation of annual training programs. Moreover, staffs can be credited with improved quality of customer service, enhanced response time and minimization of likelihood of water and sewerage spillage.

Strategic procurement planning has positive and significant influence on performance of public water companies in Kenya. Hence, it can be concluded that budgetary planning of procurement needs, continuous departmental needs and assessment, preparation of department goods utilization matrix and accounting for all procurement activities enhances provision of services by public water companies and amplifies their customers' satisfaction.

Information technology has significant effect moderating effect on the influence of strategic procurement practices on performance of public water companies in Kenya. Consequently, it can be concluded that use reliable E-procurement software, E-tendering, interlinking procurement process and payment, coherency procurement information has enhanced the influence of strategic procurement practices on performance of public water companies in Kenya.

## **5.4 Recommendations**

### **5.4.1 Strategic Sourcing**

There is need for public water companies to pursue collaborative business environment with their suppliers, create environment for improving top down and bottom-up communication, create avenues for business networking initiatives and enhance procurement cycles efficiency management and evaluation platforms. This would minimize challenges associated with quality evaluation, specification variations and conflict management during procurement process.

### **5.4.2 Strategic Contract Management**

There is need for public water companies in Kenya to enhance their contract management so as to achieve harmony on goods and services delivery, understanding of all stakeholders, enhance compliance with quality standards and measurement, adherence to procurement policies and guidelines and minimize misunderstanding among stakeholders. Achievement of these would aid them in provision of reliable and quality services.

### **5.4.3 Strategic Staff Training**

There is need for embracement of culture of employees' skills development through strategic training. Strategic training can be achieved through setting of training targets and mentorship programs. Moreover, public water companies should clarify its procurement policies and guidelines, ensure compliance with procurement ethics and standards and promotes creativity amongst its staffs.

#### **5.4.4 Strategic Procurement Planning**

There is need for public water companies to embrace strategic procurement planning this would aid in provision of quality services. Strategic procurement planning would be achieved if employees are sensitized on the need to comply with budgetary allocations and estimates, training on development of organization budgets and execution of needs assessment at departmental levels and funds examination prior to procurement would minimize conflict among procurement stakeholders in the public sector.

#### **5.4.5 Information Technology**

To the policy makers and those mandated to enhance compliance with information technology adoption in government institution. They should measure and mechanisms aimed at paperless tendering process so as to enhance delivery of quality goods and provision of reliable services. Further, through IT public water companies would derive value from its strategic procurement practices such as strategic sourcing, strategic contract management, strategic staff training and strategic procurement planning.

#### **5.5 Suggestion of Further Studies**

Since the current study drew its respondents from public water companies' similar study should be carried out to examine the influence of strategic procurement practices on performance of private water companies. Alternative methodological approach such as structural equation modelling ought to be adopted to examine the influence of strategic procurement practices on performance of public water companies in Kenya. The study relied more of quantitative data and therefore qualitative approach should be adopted to examine the influence of strategic procurement and performance of public water companies. Longitudinal data should be adopted to examine the influence of strategic sourcing, strategic contract management, strategic staff training, strategic procurement planning and performance of public water companies in Kenya.

## REFERENCES

- Agus, A. & Hajinoor, M. S. (2012). Lean production supply chain management as driver towards enhancing product quality and business performance: Case study of manufacturing companies in Malaysia. *International Journal of Quality & Reliability Management*, 29(1), 92–121.
- Ajisafe, O. E., Orifa, R. A. O., & Balogun, J. A., (2015). Influence of human capital management on organizational performance. *Journal of Resources Development and Management*, 14(15), 1-8.
- Aketch, J. & Karanja, P., (2013). Factors influencing procurement performance in Constituency Development Fund (CDF): Case of CDF use in Makadara Constituency. *International Journal of Social Science & Entrepreneurship*, 1(2), 41-55.
- Amour, M.K. (2014). *The role of procurement contract management in the effectiveness of project management for the telecommunication companies: A case of Tigo Tanzania*, Unpublished MSc thesis, Dare Salam: Mzumbe University.
- Bryman, A., & Bell, E. (2015). *Business Research Methods*. (4<sup>th</sup> ed.) Upple. Malmö: Liber AB.
- Ceryno, P. S., Scavarda, L. F., Klingebiel, K., & Yüzgülec, G. (2013). Supply chain risk management: a content analysis approach. *International Journal of Industrial Engineering and Management*, 4(3), 141-150.
- Chepngetich, J. (2018). *The relationship between procurement planning practices on service delivery among county governments in Kenya. A case of Kericho County government*, Unpublished MSc thesis, Kisii: Kisii University.

- Cherotich, R.J. (2015). *Contract management practice and operational performance of state corporations in Kenya*, Unpublished MSc thesis Nairobi: University of Nairobi.
- Chicksand, D., Watson, G., Walker, H., Radnor, Z., & Johnston, R. (2012). Theoretical perspectives in purchasing and supply chain management: an analysis of the literature. *Supply Chain Management. An International Journal*, 17(4), 454-472.
- Chigoize, M. C., Aga, C.C., & Onyia, E., (2018). Effect of human capital development in organizational performance in manufacturing industries in South-East Nigeria. *International Journal of Academic Research in Economics and Management Sciences*, 7(3), 60–78.
- Child, J. (1997). Strategic choice in the analysis of action, structure, organizations and environment: retrospect and prospect. *Organization studies. Journal of Management*, 18(1), 43-76.
- Contract Monitoring Kenya Network, CMKN (2012). Press Release. *Launch of the Contract Monitoring Kenya Network and Baseline Report*, Nairobi: Contract Monitoring Kenya Network.
- Cooper, D. R., & Schindler, P. S. (2014). *Business research methods* (12<sup>th</sup> ed.). New York: McGraw-Hill/Irwin
- Eldin, A.M.E., Ragab, A.A., Ragheb, M.A., & Mokadem, M.E. (2019). Examining the Effect of Procurement Practices on Organizational Performance in Service Organizations: A Case Study of the Arab Academy for Science, Technology and Maritime Transport. *International Journal of Business and Management Invention*, 8(3), 17-31.
- Gardenal, F. (2013). A model to measure e-procurement impacts on organizational performance. *Journal of Public Procurement*, 13(2), 216-242.

- Holmberg, S., & Rothstein, B. (2011). Quality of government and access to safe water. QoG Working Paper Series.
- Jemison. D. B (1981). The contribution of administrative behavior to strategic management. *Academy of Management review*, 6(3), 601-608.
- Kaminski, P. C., Oliveira, A. C., Lopes, T. M. (2008). Knowledge transfer in product development processes: a case study in small and medium enterprises (SMEs) of the metal-mechanic sector from São Paulo, Brazil. *Technovation*, 2(8), 29-36.
- Karanja, M. K, & Kiarie, D. (2015). Influence of procurement practices on organization performance in private sector in Kenya: A case study of Guaranty Trust Bank Kenya Ltd. *International Journal of Business & Law Research*, 3(2), 44-60.
- Kerich, I. (2018). *Effects of performance management on human resource output in organizations- case Safaricom company-Kenya*, Unpublished MSc thesis, Seinäjoki: Seinäjoki University of Applied Sciences.
- Khakayi, S.W. (2016). *Influence of training on the performance of non-teaching employees at management level in selected public universities in Kenya*, Unpublished PhD thesis, Juja: Jomo Kenyatta University of Agriculture and Technology.
- Kiage O. K., (2013). Factors affecting procurement performance. A case of Ministry of Energy. *International Journal of Business and Commerce*, 3(1), 54-70.
- Kihanya, T.W., Wafula, M.K., Onditi, E.O., & Munene, A.M. (2015). The Role of Strategic Sourcing on Organization's Performance: A Case Study of Jomo Kenyatta University of Agriculture and Technology. *International Journal of Scientific and Research Publications*, 5(5), 1-11.

- Kim SW, (2006). Effects of Supply Chain, Integration and Competitive Capability on Performance. *An International Journal*, 11(3), 241-48.
- Kiromo, E. M. (2015). *Factors affecting procurement and supply chain performance in building construction firms in Nairobi*, Unpublished MSc dissertation, Nairobi: University of Nairobi.
- Kituzi, A.E. (2016). *Influence of e-procurement on organizational performance: the case of Kenya association of manufacturers firms in Nairobi County, Kenya*, Unpublished MSc dissertation, Nairobi: University of Nairobi.
- Kothari, C. R. (2011). *Research methodology. Methods and techniques*. New Delhi. India: New Age International Publishers.
- Li, S., Ragu-Nathan, B., Ragu-Nathan, T.S. & Rao, S.S. (2006). The impact of supply chain on competitive advantage and organizational performance. *Omega*, 3(4), 107-124.
- Lysons, K., & Farrington, B. (2010). *Purchasing and Supply Chain Management* (7<sup>th</sup> Ed.). New Delhi: Pearson Education India.
- Makau, J. K. (2014). Challenges facing adoption of electronic procurement in public sector in Kenya: A case of Nairobi Water and Sewerage Company. *International Journal of Social Sciences and Entrepreneurship*, 1(11), 267-286.
- Masiko, D. M. (2013). *Strategic sourcing, supplier relationship management and people engagement and procurement performance among commercial banks in Kenya*. Unpublished MSc dissertation, Nairobi: University of Nairobi.
- Mbuthia, R. N. (2018). *Learning organization dimensions and organizational performance of commercial banks in Kenya: survey of commercial banks in Ongata Rongai Township*, Unpublished MSc dissertation, Nairobi: Kenyatta University.

- Miles, R. E., Snow, C. C., Meyer, A. D., & Coleman Jr, H. J. (1978). Organizational strategy, structure, and process. *Academy of management review*, 2(3), 546-562.
- Mokogi, W. N., Mairura, C., & Ombui, K. (2015). Effects of procurement practices on the performance of commercial state-owned enterprises in Nairobi County. *International Journal of Scientific and Research Publications*, 5(6), 1-11.
- Mosoba, T., (2012). *Public procurement system in Kenya*. Nairobi: Nation Media Group.
- Mueni, I., & Moronge, M., (2018). Influence of strategic procurement practices on performance of parastatals in Kenya: A Case of Kenya Airport Authority. *The Strategic Journal of Business & Change Management*. 5(2), 404-423.
- Mugenda, O. M., & Mugenda, A. G. (2011). *Research methods: Quantitative and qualitative approaches*, Nairobi: Acts Press.
- Mukasa, V. M. (2010). *Supply chain management practices and performance: the case of Safari-com Limited*, Unpublished PhD dissertation, Nairobi: University of Nairobi.
- Mukopi C. M., & Iravo, M. A. (2015). An analysis of the effects of inventory management on the performance of the procurement function of sugar manufacturing companies in the western Kenya sugar Belt. *International Journal of Scientific and Research Publications*, 5(5), 163-176.
- Munizu, M. (2013). The Impact of total quality management practices towards competitive advantage and organizational performance: Case of fishery industry in South Sulawesi Province of Indonesia. *Pakistan Journal of Commerce and Social Sciences (PJCSS)*, 7(1), 184-197.



- Munubi, K. Z., Kinanga, R. & Ondiba, K. P. (2017). Effects of electronic procurement on organizational performance: a case study of major supermarkets in Nairobi County. *International Academic Journal of Procurement and Supply Chain Management*, 2(3), 92-105.
- Munyao, J. M., & Moronge, M. (2018). Influence of e-procurement practices on the performance of procurement in public universities in Kenya. *The Strategic Journal of Business & Change Management*, 5(2), 1623-1648.
- Musara, M., (2012). Impact of just-in-time (JIT) inventory system on efficiency, quality and flexibility among manufacturing sector and small and medium enterprise (SMEs) in South Africa. *African Journal of Business Management*, 6(17), 5786-5791.
- Mutua J.M., Waiganjo, E., & Oteyo, I. N. (2014). The Influence of Contract Management on Performance of Outsourced Projects in Medium Manufacturing Enterprises in Nairobi County, Kenya. *International Journal of Business and Social Science*, 5(9), 25-34.
- Nderitu, K. M., & Ngugi, K. (2014). Effects of green procurement practices on an organization performance in manufacturing industry: Case study of East African Breweries Limited. *European Journal of Business Management*, 2(1), 341-352.
- Ngahu, D.M., & Bula, H.O. (2015). Effect of strategic procurement strategies in performance of microfinance banks in Kenya. *International Journal of Education and Research*, 3(12), 135-157.
- Nollet, J., Ponce, S., & Campbell, M. (2005). About strategy and strategies in supply management. *Journal of Purchasing and Supply Management*, 11(2), 129-140.
- Ochiri, G. (2011). *Factors affecting effectiveness of public procurement audits in Kenya: Case Study of the Constituency Development Fund in Migori Constituency*. Unpublished PhD dissertation, Juja: JKUAT.

- OECD, (2005). *Integrity in public procurement good practice from A to Z.*, Paris: OECD Publishing.
- Okello, J. O. & Were, S. (2014). Influence of supply chain on performance of the Nairobi Securities Exchange's listed, food manufacturing companies in Nairobi. *International Journal of Social Sciences and Entrepreneurship*, 1(11), 107-128.
- Okong'o, N.N. (2016). *Influence of strategic procurement on the performance of public enterprises in Kenya: a case of Kenya Power Company Limited, Nairobi*, Unpublished MSc dissertation, Nairobi: Kenyatta University.
- Olumbe, J. N. (2015). *The effect of outsourcing of accounting services on financial performance of deposit taking savings and credit cooperatives in Nairobi County*. Unpublished PhD dissertation, Nairobi: University of Nairobi.
- Osoro, G. (2016). Value of training on motivation among health workers in Narok County, Kenya. *Pan African Medical Journal*, 5(1), 1937-8688.
- Oyuke, O. H., & Shale, N. (2014). Role of Strategic sourcing, supplier relationship management and people engagement on Organizational Performance; A Case Study of Kenya National Audit Office County. *European Journal of Business Management*, 2(1), 336-334.
- Plummer, J., & Cross, P. (2006). *Tackling corruption in the water and sanitation sector in Africa*. Working Paper 46760.
- Redoli, J., Mompó, R., García-Díez, J., & López-Coronado, M. (2008). A model for the assessment and development of internet-based information and communication services in small and medium enterprises. *Technovation*, 28(8), 424-435.
- Republic of Kenya, (2010). *Public procurement oversight authority*. Nairobi: PPOA.

- Saleh, H. (2015). *The impact of supply chain integration on operational performance at Jordanian pharmaceutical manufacturing organization*. Unpublished PhD dissertation, Amman, Jordan: Middle East University.
- Saunders, M., Thornhill, A., & Lewis, P., (2014). *Research methods for business students* (5<sup>th</sup> ed.). New Delhi: Prentice Hall.
- Savage, G., Dunkin, J., & Ford, D. (2004). Responding to a crisis: A stakeholder analysis of community health organizations. *Journal of Health and Human Services Administration*, 6(4), 383-414.
- Sekaran, U., & Bougie, R. (2013). *Research methods for business* (6<sup>th</sup> ed.). John Wiley & Sons Ltd.
- Shook, C. L., Adams, G. L., Ketchen Jr, D. J., & Craighead, C. W. (2009). Towards a theoretical toolbox, for strategic sourcing. *Supply Chain Management. An International Journal*, 14(1), 3-10.
- Srivastava, S., Shervani, S., & Fahey, S., (2000). Performance measures and metrics in a supply chain environment. *International Journal of Operations and Production Management*, 21(2)71–87.
- Stanley, K. (2001). *Competitive advantage through outsourcing in supply chain services A Case Study of BAT*. Unpublished MBA project, Nairobi: University of Nairobi.
- Sweeney, E. (2011). Towards a unified definition of supply chain management. *International Journal of Applied Logistics*, 2(3), 30–48.
- Synyenlentu, J. (2014). *Procurement of essential water treatment chemicals at the Ghana water Company limited*. Unpublished MSc thesis, Accra: Kwame Nkrumah University of Science and Technology.

- Tessema, A. D., (2015). The impact of human capital on company performance Case of the footwear Sector in Ethiopia. *Journal of Business Studies*, 6(2), 76-103.
- Nyambura, M. T. (2018). *Moderating effect of information communication technology on supply chain risks and firm performance among manufacturing firms in Kenya*, Unpublished PhD dissertation, Juja: JKUAT
- Thorelli, H. B. (1986). Networks: Between markets and hierarchies. *Strategic management Journal*, 7(1), 37-51.
- Vanichchinchai, A. (2014). Supply chain management, supply performance and total quality management: An organizational characteristic analysis. *International Journal of Organizational Analysis*, 22(2), 126-148.
- Waithaka, P. M., & Waiganjo, E. (2015). Role of buyer supplier relationship on supply chain performance in Kenya's state corporations: A Case Study of Kenya Tea Development Agency. *International Journal of Academic Research in Business and Social Sciences*, 5(4), 104-121.
- Wang, C. & Kafouros, M. I. (2009). What factors determine innovation performance in emerging economies? Evidence from China. *International Business Review*, 18(9), 606-616.
- Wanjiru, W., S., Kiarie, D., Marendi, P. (2018) Role of Strategic Procurement Practices on Performance of Nyandarua County Government. *International Journal of Human Resources and Procurement*, 7(4), 64 – 74.
- Wensink, W., & Vet, J. M. (2013). *Identifying and reducing corruption in public procurement in the EU*. London: Price water house Coopers.

- Yunus, M. M. D., Hashim, H., Embi, M. A., & Lubis, M. A. (2010). The utilization of ICT in the teaching and learning of English: Tell me more. *Procedia Social and Behavioral Sciences*, 9(10), 686-691.
- Zeng, J., Phan, C. A., & Matsui, Y. (2013). Supply chain quality and performance: An empirical study. *Operations Management Research*, 6(2), 19-31.
- Zeng, S. X., Xie, X. M., Tam, C. M. (2010). Relationship between cooperation networks and innovation performance of SMEs. *Technovation*, 30(10), 181-194.

**APPENDICES**

**Appendix I: Letter of Introduction**

Rebecca Mutia,

P.O. Box 1764-00900

**Kiambu.**

Dear, Sir/ Madam,

**RE: REQUEST FOR RESEARCH DATA**

Kindly assist in collection of the undersigned to be used for scholarly work. My research is on **Influence of Strategic Procurement Management Practices and Organization Performance of Public Water and Sewerage Sector in Kenya.**

The research is for academic endeavors. You may request a copy upon completion.

Yours faithfully,

\_\_\_\_\_

**Rebecca Mutia**

(PhD. Candidate).....

.....

.....

.....

## Appendix II Questionnaire

You have been selected to participate in the study on strategic procurement management and performance of public water and sewerage sector in Kenya. The information was treated with utmost confidentiality. Kindly respond to all sections honestly.

**Instructions:** Mark your response with a tick (✓) or mark (X) in the space provided.

### Section I: Background information

A1. What is your gender?

Male  Female

A2. What is your highest level of academic qualification?

Secondary [ ] Professional qualification [ ] Diploma [ ] Degree [ ]

Masters [ ] Doctorate [ ]

A3. Age in years

21-30 [ ] 31-40 [ ] 41-50 [ ] 51-60 [ ]

A6. How many years have you served in your current position?

Less than 5 years [ ] between 6 and 10 years [ ]

Between 11 and 15 years [ ] between 16 and 20 years [ ]

Over 20 years [ ]

A5. Are you registered with any professional body?

Yes [ ] No [ ]

A6. Which of the following professional bodies are you registered with?

KISM [ ] CIPS [ ]

Any other (please specify).....

A7. What is your professional membership status?

	KISM	CIPS
a) Full member		
b) student member		
c) Associate member		

A8. In your opinion does your water company adhere to acceptable procurement practices? Yes [ ] No [ ]

**Section B: Strategic Procurement Management Practices**

**Strategic Sourcing and Procurement Performance**

B1: Kindly indicate your level of agreement with the following statements regarding strategic sourcing management in your water company. Kindly mark your level of agreement on a five-point Likert scale Strongly agree (SA)=5, Agree(A)=4, Neutral (N)=3, Disagree(D)=2, and Strongly Disagree (SD)=1.

<b>Strategic Sourcing</b>	<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>
Have created collaborative business environment with our suppliers					
Have created optimal cost allocation during procurement					



Have improved intra and inter teamwork and communication					
Have forced business networking amongst suppliers					
Have improved our quality of service provisions					
Have improved our joint understanding of procurement stakeholders.					
Have created efficiency in procurement cycle					
Have enhanced procurement specifications					

### **Strategic Contract Management and Performance**

B2: Kindly indicate your level of agreement with the following statements regarding strategic contract management practices in your water company. Kindly mark your level of agreement on a five-point Likert scale Strongly agree (SA)=5, Agree(A)=4, Neutral (N)=3, Disagree(D)=2, and Strongly Disagree (SD)=1.

<b>Strategic Contract Management</b>	<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>
Have created harmonious service delivery amongst stakeholders					
Have created of supplier cooperation platform					
Have created mutual understanding of all stakeholders					
Have eliminated surprises and disruption during service delivery					
Have enhanced supplier's compliance on procurement procedures					
Have created incentives for ongoing procurement performance improvement					
Have escalated misunderstanding among stakeholders					
Have led to adherence to procurement guiding principles					
Have led to development of contract management plan					

### **Strategic Staff Training and Procurement Performance**

B5: Kindly indicate your level of agreement with the following statements regarding strategic staff skills practices in your water company. Kindly mark your level of agreement on a five-point Likert scale Strongly agree (SA)=5, Agree(A)=4, Neutral (N)=3, Disagree(D)=2, and Strongly Disagree (SD)=1.

<b>Staff Training</b>	<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>
Training has clarified procurement policies and guidelines in our organization					
Our staffs have professional development targets per annum					
Staff training has clarified employees' roles and responsibilities					
There is a call for achievement of certain procurement professional qualifications skills					
Coaching programs improves staff skills					
Training creates opportunity for creativity and innovation in our organization					
Our organization has succession plan amongst procurement staffs					
Our employees are grouped according to their specialties					
Staffs training aids in preparation of annual procurement training program					

### **Strategic Procurement Planning and Procurement Performance**

B7: Kindly indicate your level of agreement with the following statements regarding strategic procurement planning practices in your water company. Kindly mark your level of agreement on a five-point Likert scale Strongly agree (SA)=5, Agree(A)=4, Neutral (N)=3, Disagree(D)=2, and Strongly Disagree (SD)=1.

<b>Procurement Planning</b>	<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>
Procurement is undertaken as per budgetary allocations					
Proper planning eliminates budgetary deficits					
Departmental needs and assessment are continuously evaluated					
Procurement department executes market capacity assessment					
All departments are encouraged to prepare goods and services utilization matrix					
Funds assessments are executed prior to procurement					
All purchases are accounted for through planning					

### **Section C: Information Technology**

C1: Kindly mark your level of agreement on a five-point Likert scale on the state of information technology in your organization. The scale ranges from Strongly agree (SA)=5, Agree(A)=4, Neutral (N)=3, Disagree(D)=2, and Strongly Disagree (SD)=1.

<b>Information Technology</b>	<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>
Reliable E-procurement software has been adopted					
E-tendering has eased paper work					
Paperless requisition has saved on procurement review time					
E-procurement has reduced lead time					
E-procurement is interlinked with payment portals					
There is coherent procurement information courtesy of E-procurement					

**Section D: Performance**

D1: Kindly rate the state of your public water company performance. Kindly mark your level of agreement on the following statements on a five-point Likert scale Strongly agree (SA)=5, Agree(A)=4, Neutral (N)=3, Disagree(D)=2, and Strongly Disagree (SD)=1.

<b>Performance</b>	<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>
Our quality of service provision has improved					
We offer timely provision of services					
We have reduced spillage of water					
We incur low maintenance and repair costs					
We respond faster to customer queries					
We offer reliable and efficient customer billing					
We have increased revenue from service provision					
We have reduced spillage of sewerage					

D2: In the past five kindly the percentage change in revenue, number of customers, number of employees and capital investment.

	<b>2014</b>			<b>2015</b>			<b>2016</b>			<b>2017</b>			<b>2018</b>		
	<b>&lt;5%</b>	<b>5%-10%</b>	<b>&gt;10%</b>	<b>&lt;5%</b>	<b>5%-10%</b>	<b>&gt;10%</b>	<b>&lt;5%</b>	<b>5%-10%</b>	<b>&gt;10%</b>	<b>&lt;5%</b>	<b>5%-10%</b>	<b>&gt;10%</b>	<b>&lt;5%</b>	<b>5%-10%</b>	<b>&gt;10%</b>
<b>Revenue</b>															
<b>Number of customers</b>															
<b>Number of employees</b>															
<b>Capital Investment</b>															

*End of Questionnaire Thank you for Participation*

### Appendix III: List of Water Service Providers in Kenya

	<b>Company</b>	<b>County</b>
1	Nairobi City Water & Sewerage Company	Nairobi
2	Mombasa Water and Sanitation Company	Mombasa
3	Kilifi-Mariakani Water & Sewerage Company	Kilifi
4	Tavevo Water and Sewerage Company	Taita Taveta
5	Lamu Water and Sewerage Company	Lamu
6	Malindi Water and Sanitation Company	Malindi
7	Kwale Water and Sanitation Company	Kwale
8	Tana River Water and Sanitation company	Tana River
9	Nakuru Water & Sanitation Company	Nakuru
10	Nzoia Water & Sanitation Company	Bungoma and Trans Nzoia
11	Nyeri Water & Sewerage Company	Nyeri
12	Mathira Water & Sewerage Company	Mathira
13	Kisumu Water & Sewerage Company	Kisumu
14	Amatsi Water Services Company	Vihiga
15	Kakamega County Water and Sanitation Company	Kakamega
16	Eldoret Water and Sanitation Company	Uasin Gishu
17	Busia Water and Sewerage Company	Busia
18	Kapsabet Nandi Water & Sanitation Company	Nandi
19	Runda Water Services Provider	Runda
20	Two Rivers Water Services Provider	Kiambu
21	Kiambu Water and Sewerage Company	Kiambu
22	Thika Water and Sewerage Company	Kiambu
23	Gatanga Water & Sewerage Company	Murang'a
24	Karuri Water Company	Kiambu
25	Ruiru-Juja Water and Sanitation	Kiambu
26	Limuru Water and Sewerage Company	Kiambu
27	Kikuyu Water and Sewerage company	Kiambu
28	Karimenu Water and Sanitation Company	Kiambu

29	Gatundu Water and Sanitation Company	Kiambu
30	Githunguri Water & Sanitation Company	Kiambu
31	Kisumu Water and Sewerage Company	Kisumu
32	Kericho Water and Sanitation Company	Kericho
33	Bomet Water Company	Bomet
34	Sibo Water and Sanitation Company	Siaya
35	Migori Water and Sanitation Company	Migori
36	Homa Bay Water and Sanitation Company	Homabay
37	Gusii Water and Sanitation Company	Kisii and Nyamira
38	Nakuru Rural Water and Sanitation Company	Nakuru
39	Nyandarua Water & Sanitation Company	Nyandarua
40	Iten Tambach Water and Sewerage Company	Elgeyo Marakwet
41	Olkalou Water & Sanitation Company	Nyandarua
42	Narok Water and Sewerage company	Narok
43	Naivasha Water and Sewerage Company	Naivasha
44	Chemususu Water and Sanitation Company	Baringo
45	Lodwar Water and Sanitation Company	Turkana
46	Kapenguria Water and Sewerage Company	West Pokot
47	Kirandich Water and Sanitation Company	Baringo
48	Nyahururu Water and Sanitation Company	Laikipia
49	Rumuruti Water and Sanitation Company	Laikipia
50	Nanyuki Water & Sewerage Company	Laikipia
51	Garissa Water and Sewerage Company	Garissa
52	Wajir Water and Sewerage Company	Wajir
53	Isiolo Water & Sewerage Company	Isiolo
54	Samburu Water and Sanitation	Samburu
55	Marsabit Water and Sanitation	Marsabit
56	Meru Water Sewerage Services	Meru
57	Embu Water and Sanitation Company	Embu

58	Tetu Aberdare Water and Sanitation Company	Nyeri
59	Othaya Mukurueni Water and Sanitation Company	Nyeri
60	Gatamathi Water and Sanitation Company	Muranga
61	Muranga Water and Sanitation Company	Muranga
62	Muranga South Water and Sanitation Company	Muranga
63	Kirinyaga Water and Sanitation Company	Kirinyaga
64	Embe Water and Sanitation Company	Embu
65	Nithi Water and Sanitation Company	Tharaka Nithi
66	Imetha Water and Sanitation Company	Tharaka Nithi
67	Kahuti Water and Sanitation Company	Murang'a
68	Naro Moru Water and Sanitation Company	Nyeri
69	Kitui Water & Sanitation Company	Kitui
70	Machakos Water and Sewerage Company	Machakos
71	Mavoko Water and Sewerage Company	Machakos
72	Kibwezi-Makindu Water & Sanitation Company	Makueni
73	Ololaiser Water and Sewerage Company	Kajiado
74	Nol-Turesh Loitokitok Water & Sanitation Company	Kajiado
75	Kangundo–Matungulu Water and Sewerage Company	Machakos
76	Wote water and Sewerage Company	Makueni
77	Kiambere-Mwingi Water & Sanitation Company	Kitui
78	Mwala Water and Sanitation Company	Machakos
79	Olkejuado Water and Sewerage Company	Kajiado