

## EFFECTIVENESS OF PROCUREMENT PROCESS AMONG PUBLIC UNIVERSITIES: THE INFLUENCE OF PROCUREMENT PLAN KENYA

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### Abstract

The study sought to determine the influence of procurement plan on the effectiveness of procurement process of public universities in Eastern region, Kenya. The study employed a descriptive research design with a study population of 94 departmental heads of the user departments in 5 Public Universities in the Eastern Region of Kenya. A census was conducted on all the 94 departmental heads under consideration, and primary data was obtained. Out of the 94 targeted, the study managed to obtain only 91, giving a response rate of 97%. Linear regression model was employed to bring out the effect of procurement plan on the effectiveness of the procurement process of public universities in Eastern region, Kenya. Chi-square analysis test statistics implied a significant association between procurement plan and the procurement process. The significance of independent variable was tested using t- test. The results obtained a p value of 0.000 and coefficient of 0.285 implying a statistically significant positive effect of procurement plan and effectiveness of the procurement process. The study concluded that public universities should encourage user departments to actively participate in procurement plan since it impacted positively on the effectiveness of the procurement process of public universities in Eastern region. The study recommends that universities should involve user departments in the preparation of procurement plan to enhance effectiveness of procurement process. The study will form a basis of policy formulation on procurement matters and provide a basis for further research in the field. The study findings will be useful to procurement policy makers in streamlining public procurement practices. The findings will also be of great importance to procurement professionals while making procurement decisions for user departments' requirements. Academicians and researchers will also benefit by adding new insights into the existing body of knowledge on procurement practices.

**Keywords:** Procurement Plan, Procurement process, Universities, Compliance, policy, risk

### Background Information

The effectiveness of the procurement process heavily depends on active participation and coordination between the user and procurement department (Weele, 2016). For instance, preparation of the specification for purchase of furniture, most of the users fail to draw complete specifications and hence the procurement process is delayed. Failure to specify requirements can also contribute to negative quality and cost implications since specifications forms the basis for both technical and financial evaluation (Schlosser, 2013). Procurement plan is a detailed description of products and services to be obtained from suppliers within a given financial year (Naylor, 2012). It is an instrument used for implementing a budget and it should be prepared by the user department with a view to avoiding or limiting excess votes in the entity's budget for ensuring that procurement don't proceed unless there are adequate funds to pay for them (PPADA, 2015). The user departments are directly involved in the preparation of procurement plans as per their requirements in line with the approved budget (Naylor, 2012). A good procurement plan should be comprehensive and in line with the approved budget (Samuel, 2012). Procurement plan is the primary function that sets the stage for subsequent procurement activities; it fuels and then ignites the engine of the procurement process.

Procurement process is a set of stages that takes place from when a need is identified until the final satisfactory delivery is made and the supplier paid (Saunders, 2010). The Process begins when the user department identifies the need and forwards a purchase requisition to procurement department for items to be purchased. However, there must be a procurement plan in place to provide procedural guidelines and ensure strict adherence to the procurement budget. Subject to procurement planning, the accounting officer shall commence the procurement process through an invitation to tender, receive and open bids, evaluate bids, award contract, preparation and signing of the contract, contract management, inspection and acceptance and finally storage and inventory management (PPADA, 2015). For procurement process to be successful, there should be a close coordination and active participation between the user departments and procurement department. This is inspired by the fact that user departments initiate the procurement of goods, works or services in an organization (PPADA, 2015). An efficient procurement process is viewed on the perspective of quality products and services, cost reduction, shortened lead times and customer satisfaction (Jorge, 2015).

University education in Kenya began in 1963 with just 571 students enrolled in Nairobi University College (Wiedman, 1995). Since then, the system has undergone some commendable expansion, and by 1998 there were a total of six public

universities (CUE, 2014). Since 1998, the expansion of university education in the country has been rapid and spontaneous in response to increasing demand for higher education necessitated by increasing flow of students from secondary schools and other tertiary institutions. By the year 2014, there were 22 public universities in Kenya (CUE, 2014). These universities were established through institutional acts of parliament under the Universities act (2012) which provides for development of University education, the establishment, accreditation and governance of Universities. Currently Universities in Kenya are established and chartered under the Universities Act No. 42 of 2012. The Commission for University Education (CUE) is the body that regulates the operations of universities in Kenya. Every university in Kenya is established and chartered as stipulated by the Universities Act, 2012. In Kenya, education is seen as one of the pillars for attaining prosperity, eradicating poverty and achievement of vision 2030. Since Kenyan independence from the British rule in 1963, the system of university education in Kenya has undergone considerable changes and expansion (Njoroge et al., 2019). In January, 2020 there were a total of 31 chartered public universities, 18 chartered private universities and 13 universities with Letters of Interim Authority-LIA (CUE, 2019). The process is aimed at promoting objectivity, fairness, public participation, competition, transparency and integrity (UNCITRAL, 2011). According to Weele (2016) purchasing effectiveness is considered to be the result of user department involvement in the entire procurement process. This means user involvement is not an end in itself but a means to effective and efficient control and monitoring of the purchasing function (Weele, 2016).

In Africa, the African Development Bank standard forms are used for goods sponsored by the Bank. In Rwanda the public procurement process is managed on real-time basis by Rwanda

Public Procurement Authority (RPPA) which operates under the Ministry of Finance and Economic Planning. Rwanda has a decentralized public procurement system whereby procuring entities have the power to conduct directly their public procurement process. The Public procurement system in Rwanda is governed by six fundamental principles namely: Transparency, Competition, Economy, Efficiency, Fairness and Accountability (RPPA, 2012). The law further stipulates that in every tender evaluation committee, there must be a representative of the user department to advise the committee on the specifications and supporting parameters to guide the committee in the tender evaluation. The Rwandese public procurement user guide (2015) states as follows: “The user unit plays the role of making the requisition for the required procurement, describing the nature of the requirements (quantity, specifications) and ensuring that the procured items meet the requirements of the user. To this effect, its role in defining technical specifications, participating in technical evaluation and inspecting the procured items before they are accepted is crucial”. In Kenya, all the standard forms are used depending on the sponsor of the project, with the Public Procurement Oversight Authority (PPOA) standards being used mainly for public goods funded by the Kenya

Government (PPOA, 2009). In Kenya, the public procurement is governed by the Public Procurement and Asset Disposal Act of 2015. The PPADA, 2015 abolished the tender committee and the procurement committee and gave power to the Accounting officers to award tenders on recommendation by the Head of Procurement Unit. The Act also among other issues introduced new procurement methods which were not envisaged in the previous Act of, 2005 and the regulations, 2006. The Public Procurement and Disposal General Manual (2012), provides that the user department shall be responsible for initiating procurement and disposal requirements and forwarding them to the procurement unit, participating in the evaluation of tenders, proposals and quotations, preparation of technical specification, undertaking conformity assessment of supplied goods, works and services with the specification of the contract documents and endorsing the issuance of goods, works and services received notes.

### **Statement of the Problem**

In any public entity, the procurement process is initiated by user departments who play the role of specification writing, preparation of procurement plan, tender evaluation and reception of goods, works and services. According to Farrington (2016), modern procurement processes are prone to delays in delivery, variances in quality and quantity, long process cycle and changing customer requirements makes the procurement process to take long than expected. Enhanced team work among functional departments in an organization can facilitate information sharing which is a critical tool for effective and efficient management (Walker, 2013). This will ensure the procuring entity gets value for money and enhance competitive buying which is anchored on the (PPADA, 2015). However, these interventions have not been able to address the problem of the lack of coordination between the user and procurement department on the enhancement of the procurement process among the Public Universities. The main challenge facing Public Universities in Kenya today is how to synchronize the operations of user department with those of procurement department to fast track the whole process right from need identification, evaluation of bids, selection of suppliers, award of tenders, contract management/expediting, inspection, receiving and payment of suppliers (Schapper, 2012). In the light of the above, this

study sought to address the knowledge gap by investigating the influence of user department's role on the effectiveness of procurement process among Public Universities in Eastern region, Kenya.

### **Objective of the Study**

i. To evaluate the influence of procurement plan on the effectiveness of procurement process among Public Universities in Eastern Region, Kenya

### **Research Hypotheses**

H01: Procurement plan has no statistically significant influence on the effectiveness of procurement process among Public Universities in Eastern Region, Kenya

### **Literature Review Effectiveness of Procurement Process**

Procurement process is a set of stages that takes place from when a need is identified until the final satisfactory delivery is made and the supplier paid (Saunders, 2010). In procurement, the first step is to define user needs, which includes the identification of the business requirements by consulting the user. The category of goods and services required by the user has influence on the procurement process and secondly the development of the appropriate procurement strategy (Lysons & Farrington, 2012). The development of the strategy will encompass the procurement approach, timeliness, evaluation of the current environment and budget preparation. The third step will involve choosing suppliers who meet the evaluation criteria. Step four is the negotiation and award of contract which ends with the signing of the contract. In situations where the framework agreement is in place, a local purchase order (LPO) is prepared and sent to the supplier. The fifth step is the induction and integration to ensure that the supplier is fully prepared to deliver all aspects of the contract and to initiate the relevant performance measurement, monitoring and reporting. The final step is inspection, receiving and payment for goods and services delivered (Lysons & Farrington, 2012).

According to the Public Procurement and Disposal General Manual (2012), the procurement cycle starts with preparation of procurement plans, preparation of specifications by the user, preparation of tender/ bid documents, advertising/invitation of bids, receiving and opening of bids, evaluation and comparison of bids, contract award, negotiation where necessary, preparation and signing of contract, contract administration, and lastly storage and inventory management. Procurement process is said to be effective when it enables the organization to build long term relationship with its customers and ensure higher process efficiency at every stage of a procurement cycle in an organization which in turn reduces or shortens sourcing cycle times (Saunders, 2010). According to PPADA (2015) subject to procurement planning the accounting officer shall commence the procurement process through an invitation to tender, receive and open bids, evaluate bids, award contract, preparation and signing of the contract, contract management, inspection and acceptance and finally storage and inventory management. All steps of the procurement process must be documented with each step being approved by the designated authority. All procurement documentation shall be properly filled.

The effectiveness of the procurement process is measured in terms of quality of goods; works and services received reduced cost, reduced lead time and enhanced customer satisfaction. Lysons and Farrington (2012) define quality as the totality of features and characteristics of products or services that bears the ability to satisfy stated or implied needs. An effective procurement process ensures purchase of high quality goods and services in an organization (Saunders 2010). Cost refers to the amount spent in order to obtain goods and services. An effective procurement process seeks to minimize costs without compromising on product or service quality. This is done through eliminating unwarranted expenses (PPDGM, 2012). Saunders (2010) defines lead time as the time between placement of an order until the final delivery of goods and services is completed. The major benefits of reducing lead times are reduced carrying costs and streamlined operations leading to effective procurement process (Momanyi, 2016). Customer satisfaction is a measure of how products and services supplied by an entity meet or surpass customer expectation (Lysons and Farrington 2012). Customer satisfaction is characterized by reduced customer complaints. Ability to meet or surpass customer expectation can be achieved through an effective procurement process.

The main link in the procurement process is information and the main challenge lies with managing information at all phases of the process to ensure the requirements of the final customer are met or exceeded. The first step in procurement process begins with a request from the user department which can either be done electronically or written. However, in the public sector the first step in the procurement process is the preparation of a procurement plan (Lysons & Farrington, 2012). Once the requisition has been approved, the buyer sends budget to the accounting department for approval after which he sends out multiple request for quotations to ensure competitiveness in buying. After the bids have been received and evaluated, negotiations may take place and eventual conclusion of the contract. Receipt of goods involves inspection

and comparison to ensure compliance with the specifications after which delivery documents are signed and payment processed (Saunders, 2010).

### **Empirical Review of Influence of Procurement Plan and Procurement Process**

PPADA, (2015) provides that an accounting officer of a public procuring entity shall prepare an annual procurement plan which is realistic in a format set out in the regulations within the approved budget prior to commencement of each financial year as part of the annual budget preparation process. In addition all assets disposals shall be planned by the accounting officer concerned through annual asset disposal plan. Some user departments often fail to submit their procurement plan as required by law and this disrupts the entire procurement process. In other instances, user departments submit their plans late than expected and this delays consolidation of the overall plan. Change of user needs always triggers the amendment of the procurement plan and these calls for preparation of the supplementary procurement plan which tends to prolong the procurement process. Use of supplementary procurement plan requires approval of the accounting officer. Submission of partial procurement plan from the user department further affects the consolidation of the overall procurement plan, however, this can be addressed through capacity building (Weele , 2016).

According to Ting (2013), procurement plan is a document with designated details to enable appropriate consideration and approval for proposed procurement activities. Procurement planning involves preparing a detailed schedule of deciding what to buy, when and from what source and the cost implication. During the procurement planning process the procurement method is assigned and the expectations for fulfillment of procurement requirements determined. Basically, procurement planning defines a process whereby procurement professionals establish what needs to be procured (goods, services or works), when they need to be procured (contract timeframes) and from what source (identifying suitable contractors and vendors). According to Lysons and Farrington (2012) Procurement planning has numerous benefits, such as: It provides an opportunity for all stakeholders to meet and discuss procurement requirements and objectives. The stakeholders could include anyone from end users, technical experts, Finance and members of the procurement department. Ensuring all relevant parties are involved in the planning process aids the development of a robust plan and ensures that procurement activities are effectively executed.

The planning process enables an organization to establish procurement requirements, assign them individual time frames and award contracts. It also facilitates determination of time frames set by requesting parties whether they are realistic or not (Howardell, 2010).Through procurement planning a firm is able to identify whether additional support is needed in order to fulfill certain requirements. Moreover, a procurement plan helps to monitor processes to ensure everything is on track and make adjustments where necessary, for instance, if there is a need for additional staffing. Organizations that fail to start their procurement processes with preparation of procurement plan are often planning to fail. On the contrary, firms which set aside time to methodically plan their procurement approach enjoy a more organized, effective and efficient procurement process (Dicello, 2012). Onchiri (2017) carried out a research on the Influence of end users Involvement in Procurement Decision Making on Purchasing Performance in Kenya police college, Kiganjo. His variables of study were specification development, procurement planning and tender evaluation. This study was inspired by the fact that procurement planning enables appropriate consideration of the procurement requirements, methods and the expectations to fulfill the end user needs. The study adopted descriptive research design with a sample size of 96 respondents. The study concluded that end user involvement in procurement planning has significant influence on performance of purchasing activities at Kenya Police College, Kiganjo. This study was however carried out with respect to influence of end user involvement in procurement planning on purchasing performance which is different from influence of user department's role on procurement process.

Leiyen (2016) conducted a research on procurement process and organizational performance among state corporations. The variables of study were procurement plan, evaluation, specification and receiving. The study was informed by the need to determine the relationship between procurement process and organizational performance. The study adopted descriptive research design and a sample size of 74 respondents. The study findings concluded that there is a significant relationship between procurement process and organizational performance among state corporations. The sample chosen was however too small as it could not provide a generalized conclusion to all corporations in Kenya state. Onyango (2012) carried out a research on effects of procurement planning on institutional performance, a case study of Mombasa law court. The study adopted procurement planning, cost estimation and specification. The study was inspired by the fact that procurement planning determines how the organizations needs can best be met, the scope of the goods, works or services required, what procurement strategies or methods to be deployed, setting the time frames, and the accountability in the entire procurement process. The study adopted descriptive research design with a sample size of 60. The study concluded that procurement planning has significant effect on the institutional performance at Mombasa Law courts. This study was



however carried out with respect to procurement planning on institutional performance at Mombasa Law courts which is different from influence of user department's role on the procurement process.

### Methodology Research Design

This study employed descriptive research design the study because it aimed at describing the relationship that exists between user departments plan and the procurement process.

### Sampling Procedure and Sample Size

In this study, the target population was departmental heads from all the functional departments of the 5 Public Universities in Eastern region which included: Faculties, Directors, Procurement, Finance, human resource, Estate, Security, Library, Farms, Accommodation, ICT and Transport. According to the Universities manual (2018), the total number of departmental heads working in these departments were 94. The study employed census technique. Census was employed because the researcher purposely targeted user departments in the 5 Public Universities in Eastern part of Kenya. The user departments were divided into 12 categories as indicated in the table below

Table 1: Distribution of User Departments

Department	Chuka University	Embu University	Seku University	Machakos University	Meru University	Total
Faculties	5	4	4	4	5	22
Directors	5	3	3	3	8	22
Finance	1	1	1	1	1	5
Procurement	1	1	1	1	1	5
Human Resource	1	1	1	1	1	5
Estate	1	1	1	1	1	5
Security	1	1	1	1	1	5
Library	1	1	1	1	1	5
Farms	1	1	1	1	1	5
Accommodation	1	1	1	1	1	5
Ict	1	1	1	1	1	5
Transport	1	1	1	1	1	5
Total	20	17	17	17	23	94

Source: Universities Manual (2018)

### Research Instrument

The study employed a structured questionnaire as the primary data collection instrument. The questionnaire contained closed ended questions.

### Data Collection Procedure

The study involved collection of primary data.

### Data Analysis

Descriptive statistics of frequencies, percentages, mean and standard deviation were used to describe the characteristics of the respondents and variables with the aid of statistical package for social sciences (SPSS) version 28.0 since it was the latest version. Chi-square analysis at 5% level of significance was conducted to show the association between user department's role and the procurement process of Public Universities in Eastern region, Kenya. Further data was analyzed using ordinary least squares and multiple regression was done for the overall model. Data was presented inform of tables and charts and using t-test and F-test. Estimated linear regression models were adopted to examine the information where hypotheses were tested using t-test while the overall significance of the model was tested using F-test at 5% level of significance.

## Results and Discussion

### *Descriptive Analysis of Procurement Plan Indicators and Parameters*

Scarcity of resources and desire to satisfy procurement customer requires proper timing for allocation of resources for user department, logistical difficulties and clearance both locally and international markets. This study aimed to find out whether the organisations have approved procurement plan. This is indicated in figure 1.

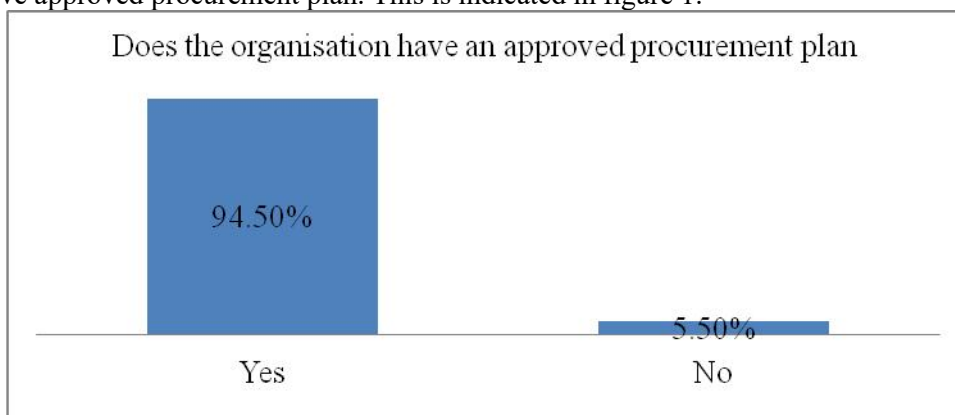


Figure 1. Does the Organization have an Approved Procurement Plan

Results in the figure above indicates that majority of the respondents said that their organization has an approved procurement plan while a minority of 5.5% said that their organization does not have an approved procurement plan. These results imply that majority of Universities are able to plan their procurement activities based on the information generated from research and therefore increase customer satisfaction by providing sufficient lead time dates, quality and cost reduction. These results are positive as the requirements of ISO/DIS 10845-1 of 2008 specify that public organisations need to have a predetermined procurement plan. Wright (2019) specifies that when this happens, the organization success of the procurement process will be enhanced hence user departments will receive quality products and services ensuring customer satisfaction and reduced costs. Organisations may have procurement plans, but they are likely to fail in their procurement activities if they do not follow the plan properly. Plans are a guide to procurement activities and they enhance success of the procurement process. Results on the extent to which procurement plan is followed are provided in table 2.

Table 2: Extent to Which the Procurement Plan is followed

Procurement plan	5- Very large extent	4- Large extent	3- Some extent	2-Small extent	1-Very small extent	Mean	Std. Dev.
User requirements	42.9	26.4	28.6	.0	2.2	4.08	1.19
Timeliness	18.7	34.1	20.9	19.8	6.6	3.38	1.19
Budget	35.2	40.7	14.3	5.5	4.4	3.97	1.06
User involvement	50.5	35.2	8.8	3.3	2.2	4.29	.922
Average	36.82	34.1	18.15	7.15	3.85	3.93	1.09

Findings showed that 42.9% of the respondents said that the user requirements in procurement is followed in a very large extent while a minority of 2.2% said that user requirement is followed in very small extent. It was evident from the results 28.6% of the respondents said that to some extent user requirements in procurement is followed while 26.4% said that user requirements is followed in large extent. Findings also showed 34.1% of the respondents said that timeliness is followed in large extent while 20.9% of the said that timeliness is followed to some extent. Results indicated that a minority of 6.6% said that a very small extent of timeliness is followed. It was also found out that 18.7% of the respondents said there is a very large extent of timeliness while 19.8% said that there is a very small extent of timeliness in procurement plan. It was found out that 40.7 of the respondents said that there is a large extent of budgeting followed in procurement while 35.2% said that budgeting is followed in a very large extent. A small percent (4.4%) said that budget is followed in a very small extent in procuring. Results further indicated that 14.3% of the respondents said that to some extent budget is followed while 5.5% said that budgeting is followed in a very small extent. Research also showed that 50.5% of the respondents said that user involvement is followed in a very large extent while 35.2% said that it is followed in a large extent. It was evident from the findings that 8.8% said that user involvement is followed in some extent while 3.3% said that it followed small extent as 2.2% responded that user involvement is followed in a very small extent.

Generally the results indicate that a simple majority of 36.8% indicated that procurement plan is followed to a very large extent, while 34.1% indicated that procurement plan is followed to a large extent, 18.15% indicated the plan is followed to some extent and the least percentage (3.85%) indicated that the procurement plan is followed to a very small percent. The results are positive as (Nderi, 2015) opined that organisations that follow the procurement plans enjoy the advantages of cost savings, efficient business operation, increased value for money and consequently good service delivery is achieved. Following procurement planning to the letter allows an agency to link its procurement objectives to service delivery objectives and identify ways of improving how it procures to meet its future needs.

### Association of Procurement Plan and Effectiveness of Procurement Process

Descriptive statistics of percentages and chi-square test were used to analyses the data in order to establish the association of specification writing and effectiveness of procurement process. The results are in Table 3.

Table 3: Association of Procurement Plan and Effectiveness of Procurement Process

Extent procurement plan is followed	Procurement Process				Very Total
	Dissatisfied	Indifferent	Satisfied	Satisfied	
Very Small Extent	2.2%	0.0%	0.0%	0.0%	2.2%
Some Extent	0.0%	2.2%	13.2%	3.3%	18.7%
large extent	0.0%	14.3%	22.0%	4.4%	40.7%
very large extent	0.0%	0.0%	29.7%	8.8%	38.5%
<u>Total</u>	<u>2.2%</u>	<u>16.5%</u>	<u>64.8%</u>	<u>16.5%</u>	<u>100.0%</u>

Pearson Chi-square value=107.930a, df 9, p-value (Asymptotic significance-2 sided)=0.00

From the above table it is evident that majority (2.2%) were dissatisfied that Very Small Extent was followed in terms of the Association of Procurement Planning and Effectiveness of Procurement Process. While there was 0.0% among the respondent who were either Indifferent, Satisfied, and Very Satisfied. Moreover, those who responded that some extend was followed and were satisfied were (13.2%), 2.2% were indifferent, 3.3% were very satisfied that some extend was followed in procurement plan process, also there was 0.0% of those who believe there was some extend in the process. Majority (22.0%) satisfied that large extent was followed in association of procurement planning and effectiveness of procurement process, 0.0% were dissatisfied large extent was followed, 14.3% were indifferent, and 4.4% were very satisfied that large extent was followed in the process. 29.7% Satisfied that a very large extent was followed, 8.8% were very satisfied that very large extend while 0.0% were dissatisfied or indifferent in extent of procurement plan followed. The data was further analyzed using chi-square test at 5% significance level. The computed chi-square value 107.930 and p-value=0.00 implied that there was a significant association between procurement planning and effectiveness of procurement process. These results imply that respondents significantly associated the extent to which the procurement plan was followed with effectiveness of procurement process among Public Universities in Eastern Region, Kenya since the Chi-square results obtained showed that ( $P < 0.05$ ). Davis (2013) posits that when respondents significantly associate the effectiveness of one process to another process they have better attitudes towards the process hence demonstrate cooperative behavior towards following the procurement plan.

### Correlation between Procurement Plan and Effectiveness of the Procurement Process

To determine the degree or strength of the linear relationship among the variables, Pearson correlation was used. This was meant to identify the direction of the association between the indicators of these variables. The correlation findings are presented on Table 4.

Table 4: Correlation between Procurement Plan and Effectiveness of the Procurement Process

		Correlations	
		Effectiveness of the Procurement Process	Procurement Plan
Pearson Correlation	Effectiveness of the Procurement Process	1.000	.384
	Procurement Plan	.384	1.000
Sig. (1-tailed)	Effectiveness of the Procurement Process	.	.000
	Procurement Plan	.000	.
N	Effectiveness of the Procurement Process	91	91
	Procurement Plan	91	91

The correlation results presented in Table 4 points out that the procurement plan and effectiveness of the procurement process are positively and significantly correlated ( $r = 0.384$ ,  $p = 0.000 < 0.05$ ). This suggests that effectiveness of the procurement process in terms of lead times, customer satisfaction and quality is increased by frequent and effective use of a procurement plan in public universities in eastern region Kenya. The results were contrary to Randall (2014) in his study in ensuring clarity and minimizing procurement risks in Petróleos Mexicanos through strong procurement plans and model contracts. He found out that there was no significant relationship between procurement plans and effectiveness of the procurement plans.; the results of his study can be explained by the fact that in his study, adoption of procurement plans in most his population was low whereas in the current study adoption of the procurement plan was to a large extent and the majority of the user departments in the current study were satisfied with the nature of procurement plans in their universities as shown in the cross tabulation results presented in table 4 above.

### Regression Analysis and Hypothesis Testing

To test the Null Hypothesis H01 which stated that procurement plan has no statistically significant influence on the effectiveness of procurement process among Public Universities in Eastern Region, Kenya, simple regression analysis was carried out. The results are presented in Table 5.

Table 5: Regression Analysis for Objective Two

(a). The Goodness of Fit of Model

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.384 <sup>a</sup>	.147	.138	.602
a. Predictors: (Constant), Procurement Plan				
b. Dependent Variable: Effectiveness of the Procurement Process				

As indicated in Table 29(a) the study shows the value of R-squared obtained by the study was 0.147 at a probability value 0.000, which is less than significance value of 0.05. The R-squared 0.147% obtained in this study implies that 14.7 % of the variations in effectiveness of the procurement process can be explained by the independent variable procurement plan while 85.3% of variations in effectiveness of the procurement process are explained by random error or other factors. To further test for the influence of procurement plan on the effectiveness of the procurement process, Analysis of Variance (ANOVA) was carried out to ascertain the significance of the estimation model. Results presented in table 5 (b)



## (b): The Overall Significance of the Model

Model	ANOVA <sup>a</sup>				
	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	5.573	1	5.573	15.381	.000 <sup>b</sup>
Residual	32.251	89	.362		
Total	37.824	90			

a. Dependent Variable: Effectiveness of the Procurement Process

b. Predictors: (Constant), Procurement Plan

As presented in Table 29 (b) the study shows the analysis of variance (ANOVA) of the regression analysis. F-value was found to be 15.381 and a p-value of 0.000. The p-value is less than the significance level ( $0.000 < 0.05$ ) hence indicating that the overall model testing the influence of procurement plan on the effectiveness of the procurement process was statistically significant. The findings of this study shows that procurement plan is a good predictor of the effectiveness of the procurement process. Regression Coefficients for the model on procurement plan and effectiveness of the procurement plan were presented in Table 5 (c).

## (c): The Individual Significance of the Model

Model	Coefficients <sup>a</sup>				
	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
1 (Constant)	2.777	.307		9.037	.000
Procurement Plan	.285	.073	.384	3.922	.000

a. Dependent Variable: Effectiveness of the Procurement Process

Table 26 (c) shows that constant of regression was 2.777.

The slope of regression model obtained was 0.285, the t-statistic obtained for this model was 3.928 at a P-value of 0.000 which is less than the significance value of 0.05. This implies that procurement plan has a statistically significant influence on the effectiveness of the procurement process. This study therefore rejects the null hypothesis H01: Procurement plan has no statistically significant influence on the effectiveness of procurement process among Public Universities in Eastern Region, Kenya.

The findings of this study bring out the importance procurement plan on the effectiveness of the procurement process. These findings support the postulates of the resource based theory proposed by Wernerfelt in 1980. The theory argued that organisations constitute resources and capabilities which must be carefully planned to enhance organizational value. This has been proven by the results of this study which implied that procurement plans in terms of annual procurement budgets, and disposal plans enhance the effectiveness of the procurement process in terms of enhanced quality, better lead times, cost reduction and enhanced customer satisfaction. Therefore organisations that fail to prepare and consolidate their procurement plans may not satisfy the requirements.

The findings of this study are consistent with study findings of Lysons and Farrington (2012) that procurement plans had a significant benefits to the organizations requirements and benefits. However this study brings on new knowledge by assessing the contribution of procurement plan to the effectiveness of the procurement process using original findings. The results also help clear the contradictory results of Randall (2014) and Lysons & Farrington (2012) by showing that procurement plans do enhance the effectiveness of the procurement process in terms of quality, reduced costs, lead times and customer satisfaction. Therefore observations drawn above contribute to bridging the knowledge gaps identified in previous literature.

**Conclusions and Recommendations***Recommendation*

University institutions should have a policy on how to effectively prepare and implement their procurement plans. When plans are developed based on environmental scans, they should be followed to the letter. Any variations in the implementation of the procurement plans will lead to accountability problems and may be costly to an organization. This study further recommends that user departments should be involved in the preparation of the procurement plan to enhance the effectiveness of the procurement process. The process for making amendments on the procurement plans should be made easy and error free through automation to save user departments from the excessive commitments when doing the plans. This will enhance the procurement process effectiveness by reducing quality issues, costs, and lead-times.

## Conclusions

The study concludes that organizations have to design and follow procurement plans in order to succeed in their procurement processes. The procurement plans and procedures laid out by the procuring entity need to be implemented so as to enhance procurement process in terms of reduced costs, reduced lead times and increased quality of goods and services received in an organization.

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