



## **THE INFLUENCE OF PROCUREMENT AUDIT ON PROCUREMENT EFFECTIVENESS**

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Received: April 21, 2022

Accepted: May 29, 2022

Published: June 01, 2022

### **Abstract:**

*The contribution and significances of procurement audit towards the procurement activities brought several debates in the country. This study examined the influence of the procurement audit on the procurement effectiveness of public organizations in Tanzania. The study identified compliance audit, value for money audit and strategic audit as the main procurement audits that are implemented in the public sector. The specific objectives were therefore, to ascertain the influence of each of the stated procurement audit on the procurement effectiveness. The study was carried out in Dar es Salaam city, surveying five public organizations (TRA, TTCL, DCC, MSD and TANESCO) that were selected to represent all other public organizations in generalizing the findings. In this survey design, 154 respondents were selected via snowball sampling techniques to represent a total of 250 respondents in data collection. Primary data were collected by self-administered questionnaires and four PPRA reports were reviewed to compile secondary data. Data were quantitatively analysed using inferential statistics; correlation and regression analysis with the aid of statistical Packages for Social sciences (IBM SPSS Statistics 23). The findings revealed that, value for money audit has high significant contribution to the procurement effectiveness followed by the compliance audit. On the other hand, the strategic audit showed an insignificant contribution to the procurement effectiveness. The study recommends, the government and PPRA to emphasize and ensure matters and recommendations given by procurement auditors are dealt accordingly while also strengthening procurement audit so as to improve procurement effectiveness and public funds management at large.*

### **Keywords:**

Procurement Audit, Procurement Effectiveness, Tanzania

## **1. Introduction**

### **1.1. Background and Essence of Procurement Audit**

From the theory of stewardship, auditing is said to start a while ago, and it kept spreading as a result of civilization which came along with the emphasize of the importance of checking upon fidelity of a man who has being entrusted with the property of another and / or to act on behalf of another person. In the last phase of the 20th century, the success brought by the internal audit in the field of accounting and the influence it showed in boosting organizational performance, other disciplines started to adopt and apply auditing thereafter (Aulia and Isvara, 2021). And from there auditing started to be implemented in the Information and Communication Technology (ICT), in operation (performance and quality auditing) and in procurement (Andreas, 2012).

At its introduction, procurement auditing was designed to prevent fraud, to ensure effective and efficient procurement operations, to counter corruption and to prevent current and future risks (Davis and Donaldson, 1991). As formalization of procurement kept on going, a need to ensure compliance to the laws and regulations governing the discipline was added to the list of procurement audit objectives. The objectives kept on changing from time to time resulting from the new developed literatures and the enacted laws specifically in each ones nation. According to CIPS (2015), the now inherited procurement audit types that apply in general cases in procurement audit are value for money, strategic, reporting and compliance.

Globally, the procurement audit started to be adopted by the giant war states like the United States of America (USA) and the United Kingdom (UK) from 1880's with minimal formalization at that time (Davis and Donaldson,

1991: Drozd et al., 2021). In USA, the US Federal Procurement Policy of 1859 was among the earliest remarkable policies in the history public procurement audit. The policy had specified the interest that the government has in procurement especially the defence procurement. From there, both public / federal procurement and procurement audit started to be more effective as several changes were introduced from time to time to enable the function to adopt with the changes happening in the world at that particular time (Fazekas and Blum, 2021). US federal procurement audit then passed through the Contract Dispute Act of 1920 to the Contract Act of 1984 to the current laws that specifically address the procedures of procurement audit, the authorities responsible and all matters concerned such as the Federal Acquisition Reform Act and the Federal Property and Administrative Service Act of 1949. The evolution has been more of a union matter in the European Union (EU) as now the procurement audit is stipulated in the EU procurement law and all procurement laws of the respective member nations (Aulia and Isvara, 2021).

In Africa, just like the above mentioned nations above, procurement audit evolution has undergone several drastic formalization changes to ensure it becomes a tool for effectiveness procurement function in public sector. The main difference of African procurement audit evolution with that of western nations is that, in Africa the function came late and its emphases became more critical in the 1990's (Ebimowei and Binaebi, 2013). Taking Ghana as an example, procurement audit emerge in 2003 after an enactment of the Public Procurement Act of 2003. Later on, the function was emphasized much by the Ghana's Public Procurement Manual of 2006 under (section 1.8) that directed each procurement entity to ensure regular internal auditing of its procurement activities and overall annual procurement audit that is to be conducted by the Public Procurement Board and the Auditor General from the Ghana Audit Service for the aim of ensuring overall procurement effectiveness in Ghana (Etse and Asenso-Boakye, 2014).

In Tanzania, public procurement audit is not an emerging nor an older function as it was in use since the PPA No. 21 (2004) to the present. Currently, the practice is mandatory and it is to be implemented in all public organizations in the country. According to the PPA No. 7 of 2011 as amended in 2016, the Public Procurement Regulatory Authority (PPRA) is responsible to organize procurement audit to all public procuring entities through its appointed and qualified procurement auditors. The process is conducted systematically and systemically so as to assess the law compliance level of the procurement activities and to ascertain if value for money is achieved. Different studies such as that of (Etse and Asenso-Boakye, 2020; Jembe and Wandera, 2019; Ochriri et al, 2018) agrees that generally the public procurement audit is there to ensure public procurement effectiveness. Most of these studies show that, there is a link between procurement audit (compliance audit, value for money audit and strategic audit) and attainment of procurement effectiveness in public sector and explain much that this is the justification of all the formalization stages that procurement audit has passed through. What was still missing in the literature was the narration and explanation on the link between these variables and possible justification to generalize the particular link in the entire public sector. Thus motivated the conduction of this survey study on the influence of the procurement audit on the procurement effectiveness of public organizations in Tanzania.

## 1.2. Statement of the Problem

For a quite some time now, there has been plenty of establishments and reforms in the public sector procurement system which aim at improving the effectiveness of procurement function in Tanzania such as laws enactments and amendments (such as the Public Procurement Act (No.7) of 2011 as amended in 2016) and establishment of various bodies such as the PPRA, Public Procurement Appeal Authority (PPAA), Public Procurement Policy Division (PPPD), Procurement and Supplies Professionals and Technicians Board (PSPTB) and the Government Procurement Services Agency (GPSA), (Mwarizo, 2021). Various studies show that, the effectiveness of procurement function in public sector has been influenced by a number of factors, (Mshamu, 2020). Among the frequently mentioned factors recorded as in charge for the procurement effectiveness include procurement cycle duration, quality of the purchased product / service, lead time, economic efficiency of the procurement process and the return on investment, (Yusuf, Tonya and Mohamed, 2021). Different empirical studies show that, the efforts of the government and other relevant stakeholders have turn into enhancing procurement audit, as it seems from its objectives to be a major tool to ensure procurement effectiveness is achieved in public sector in the country, (Mshamu, 2020; Mwarizo, 2021; LAC, 2014; Joesbury, 2016).

Since procurement audit acts as a watchdog to oversee the procurement function undertakings in the public sector, the enforced procurement audits may be among the major influencers of procurement effectiveness of procuring

organizations in public sector. Unfortunately, this area has received less attention and emphasis in the literature of procurement and supply chain specifically in the public sector. Little is known to narrate the impact of procurement audit on the effectiveness of procurement performance in Tanzania's public sector. This is to say, there is lack of scientific proven knowledge to explain and generalize the influence of procurement audit on the procurement effectiveness of the public organizations in Tanzania.

Among the assumptions of agency theory is that, when an audit is enforced and implemented leads to the effectiveness of the audited function in return; therefore the main procurement audits are more likely to influence the effectiveness of procurement function at large in the public sector. In this regard, this study was carried out to examine the influence of the procurement audit on the procurement effectiveness of public organizations in Tanzania.

### **1.3. Research Objectives**

The main objective of this study was to examine the influence of the procurement audit on the effectiveness of the procurement function of public organizations in Tanzania. Specifically, the study examined the influence of compliance audit, value for money audit and strategic audit on the procurement effectiveness of public organizations.

### **1.4. Research Hypothesis**

The study was guided by the following hypotheses;

H1: Compliance audit positively influence procurement effectiveness of public organization.

H2: Value for money audit positively influence procurement effectiveness of public organization.

H3: Strategic audit positively influence procurement effectiveness of public organization.

### **1.5. Significance of the Study**

Theoretically, the study bridges the gap of knowledge that existed in the literature of procurement and supply chain involving the relationship between procurement audit and procurement effectiveness in public sector in Tanzania. The findings adds some vivid knowledge to scholars and establishes a well-defined relationship between the two variables and their interdependence nature.

The study calls for public sector and public organizations like TRA, TTCL, DCC, MSD and TANESCO to correct the small shortfalls that are observed in their procurement audit as a measure to increase the effectiveness of procurement function. The findings give the public organizations and their leaders the awareness and understanding on the importance, value and impact that procurement audit in their organization.

## **2. Literature Review**

### **2.1. Theoretical Literature Review**

#### **2.1.1. Agency Theory**

Aulia and Isvara, (2021) explain agency theory as a principle that mostly explains the relationship between business principal and the agents and proposes better ways to resolve any issues that may hamper that relationship. According to the theory, principal(s) hire agents for day to day transactions and supervision on their behalf and they delegate the authority to make decisions to agents. An agent will make decisions that may affect the principal because the theory assumes the interests of principal and an agent are not always guaranteed to be compatible. Despite the principal being the investor and the great risks are attached to him / her, still lacks day to day input and decision making authority.

This situation calls for an audit on all functions and sectors, be it finance, operations and / or procurement. (Sekaran and Bougie, 2010). According to Gunter and Claus (2012), agency theory explains how to best organize relationships in which one party determines the work while another party does the work. Agency theory assumes both the principal and the agent are motivated by self-interest. This assumption of self-interest dooms agency theory to inevitable inherent conflicts. Thus, if both parties are motivated by self-interest, agents are likely to pursue self-interested objectives that deviate and even conflict with the goals of the principal.

### **2.1.2. Stewardship Theory**

According to Davis and Donaldson (1991), stewardship theory explains the relationship between principals and stewards (appointed executives or managers) in an organization and how to maintain their relationship. Stewardship theorists assume that stewards are pro-organizational and trustworthy given they are self-serving and operating in a good environment with full support and cooperation. A steward is referred to as a person who protects and takes care of the needs of others on their behalf on well-agreed terms (in our case are company executives). Stewards are there to create and maintain a successful organization for the prosperity of the shareholders through protecting the interests of shareholders and the company and making decisions on behalf. The theory is used much in audit studies as it is designed well to explore the presence of the relationship between executives in organizations who act as stewards and are very motivated to perform their duties in the high interest of the principals, (Drozd et al., 2021).

Implication of the stewardship approach in an organization is of many advantages and relevance as it enforces various changes within an organization, since the theory plays a significant role in ensuring accountability in monitoring activities, auditing and reporting functions for the better achievement of organization objectives (Aulia and Isvara, 2021).

These theories have many implications relating to procurement audit, particularly in an organization that is exposed to risks of compliance, ethical practices and strategic ones. Therefore, these theories give a constructive relationship between the level of performance an organization is seeking and the procurement audit performance as a profession and as a function, (Kertali and Tahajuddin, 2018). These theories are relevant and important to the study as they explain the essence and composition of an institute and give emphasis on several tools such as procurement auditing to enable the effectiveness of the procurement function and institute while countering possible risks and ensuring effectiveness of the internal processes (Fazekas and Blum, 2021). The theories also enabled the formulation of the hypotheses and the conceptual framework of the study.

### **2.1.3. Procurement Audit Types**

CIPS (2015) listed five categories of procurement audit in both private and public organizations that are mostly applicable globally and implemented in the regulative instruments of procurement audit of so many nations (Yusuf et al., 2021). These procurement audit types (compliance, value for money, strategic, operational and reporting) serve the big goal of enhancing better governance of public funds when applicable in the public sector and they are conducive for both internal and external procurement audit. These types and their objectives have turned public procurement audit into a comprehensive approach of ensuring the effectiveness of the procurement function, effectiveness of the entire organization while managing all risks likely to affect the procurement function while managing the total quality of the entire process (Aulia and Isvara, 2021). In Tanzania, three types of auditing are mainly practiced; two being per the enacted law (compliance and value for money audit)

### **2.1.4. Compliance Audit**

According to Ochiri (2014), the compliance audit ensures the audited public organization complies to the public procurement law and regulations, policies, procedures and other relevant laws of the respective country in the procurement operations. By virtue of section 9(1)(b) and (i) of the PPA 2011, the Public Procurement Authority is mandated to monitor the extent of compliance to the Public Procurement Act, Public Procurement Regulations and other guidelines issued by the authority in the implementation of public financed projects. In carrying out the compliance audit, the Authority has prepared seven indicators to be used in assessing the extent of compliance to the PPA 2011, PPR 2013 and their amendments of 2016.

### **2.1.5. Value for Money Audit**

This audit significance has risen in the 21st century as it is considered to be the overall tool for the performance of not only procurement but the organization at large (Lyson and Farrington, 2006). Value for money is assessed and ensured through observing the economy, efficiency and effectiveness of the procurement function at large, (Murage and Ndeto, 2021). By virtue of section 9(1) (h) of the PPA 2011, the Public Procurement Authority is mandated to audit the award and implementation of the awarded contracts to ascertain if contracts are implemented as per terms and conditions stated therein and if the value for money spent is adequate.

### **2.1.6. Strategic Procurement Audit**

This last category of procurement audit deals with the assurance of the organization's long term goals and objectives through the performance of procurement function. Currently as a business tendency and organizational practice, all organizations (be it private or public) have established long term targets that they hope to be attain in the near future. In Tanzania, strategic procurement audit is very rare and always performed in a long interval of time, and in some organization it is yet to be practiced, (Mwarizo, 2021). To support this, procurement audit also check the strategic compliance of the procurement process to the organization's strategic agenda (Drozd et al., 2021).

### **2.2 Empirical Literature Review**

Bonnie et al., (2016) conducted a study on the evaluation of audit of procurement practices in Canada. This descriptive study was taken at the Library and Archives Canada (LAC) for the aim of understanding the procurement auditing and recommends measures to improve it. Findings of the study showed that, LAC had an opportunity to improve its monitoring and reporting activities, improve its procurement processes and trends and improve its effectiveness to strengthen the organizational performance through improving its procurement audit.

The study was more aggressive in finding ways of improving organization performance and procurement process output compared to other studies before like that of LAC 2014. Despite recommending ways of improving procurement audit, the study was silent on the certainty of the influence of procurement audit to the procurement performance and effectiveness and questions like; to what extent will the improvement of procurement audit improve procurement monitoring and reporting activities remained unanswered.

Joesbury (2016) did a research with the title, 'Improving the effectiveness of procurement' which was conducted in the United Kingdom. In this study, the researcher was assessing factors that can be used to improve the effectiveness of the procurement function in the United Kingdom. The researcher pointed out various factors that determine and can improve procurement effectiveness such as procurement strategy, role of corporate management, proactive procurement approach, internal marketing and procurement audit. In this mixed study (applied both qualitative and quantitative approaches) the researcher failed to generalize the findings and there was lack of evidence to justify the relationship between procurement audit and effectiveness of procurement function, and / or other mentioned factors. Many researchers criticized the study on the basis of the approach used that was not compatible to the objectives of the study.

In the study of Etse and Asenso-Boakyee (2020) it was revealed that the essence of implementing public procurement audit in Ghana was to ascertain whether procurement performance adheres to the pre-determined procurement goals and standards within the defined parameters so that needed changes can be adopted to improve procurement effectiveness. This study was evaluating the public procurement audit process in practice, a case study of the Public Procurement Authority offices in Kumasi and the procurement unit of the Kumasi Polytechnic in Ghana. In the study's recommendations, the researchers recommended a critical analysis of the procurement audit reports and called for a great emphasis to be put on the improvement of procurement standards thorough to improve the procurement performance in Ghana. The main criticism of this study is the sample size used. The researcher included only two public sector institutions in the study out more than 90 institutions that are in Ghana; and the study involved only one administrative region out of ten. Therefore, the study cannot be used to generalize for all the public sector institutions in Ghana.

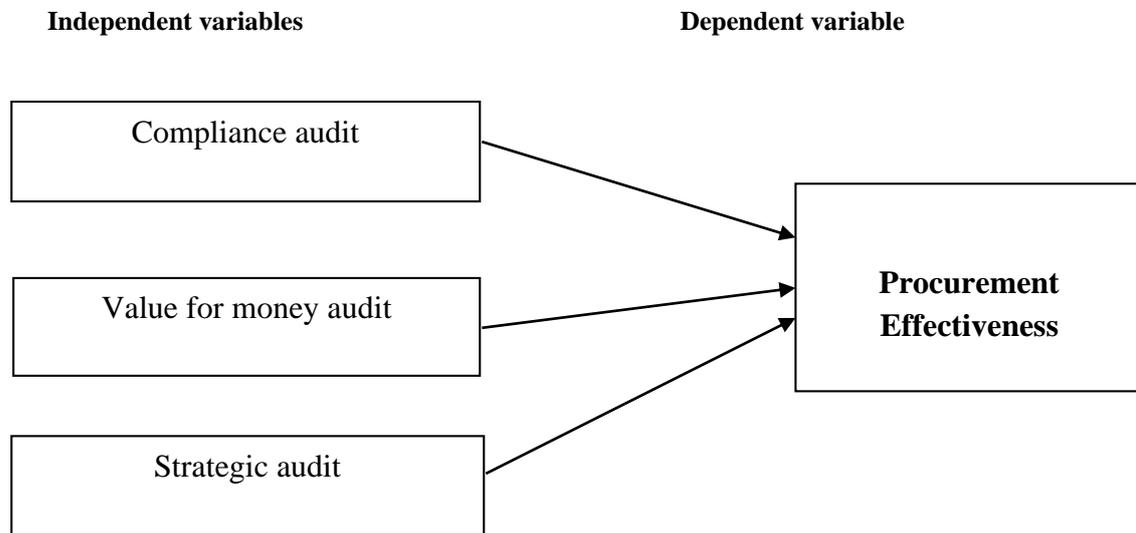
A study of Jembe and Wandera, (2019) which was conducted in assessed the existence of a link between procurement audit and procurement performance. This quantitative study was based on non-government organizations in Kenya, a case study of Compassion Kenya (an International non-government organization) which is located in Mombasa.

This study was able to evaluate the relationship between the stated variables through the Pearson correlation and multiple regression analysis. The findings revealed that, there is a positive and significant relationship between the variable and procurement audit has a significant influence to the procurement performance in non-governmental organizations in Kenya. Despite the truth that this study was well organized and statistical analyzed, the study only based on non-governmental organizations living away the public sector under researched despite the fact that procurement audit is statutory in public sector in Kenya, and the research could be very effective if it could base in this sector or on both sectors.

Yusuf, Tonya and Mohamed (2021) in their study which aimed in identifying the impact of procurement audit towards the procurement performance in Tanzania showed different impacts of procurement audit such as enhancing law compliance and ethical practices in procurement, it improves the performance by ensuring the procurement goals are attained and if not it proposes measures to improve the situation. This qualitative study was conducted in Dar es salaam and at TRA headquarters offices as the case study involving only 15 respondents as sample of the 25 respondents who were identified as the population. In this descriptive study, the researcher failed to show the significance level of procurement audit to the procurement performance.

A study of Mwarizo (2021) which assessed the contribution of procurement audit in enhancing ethical and compliant of procurement practices showed that, among other factors procurement audit also improve the efficiency and effectiveness of the procurement function and the organization at large. Others impacts of procurement audit included the enhancement of ethical and compliance to the law. This descriptive study was conducted in Morogoro at the Sokoine University of Agriculture as a case study. The study did not elaborate much of the relationship between procurement audit and procurement effectiveness as expected, it just focused in identifying the impacts of procurement audit. And as a result, it ended by recommending to procurement officials and head of departments to ensure honesty and objective procurement audit for the betterment the organization and prosperity.

Mshamu (2020) conducted a study to assess the effectiveness of procurement process in public sector, using Temeke Municipal Council as the case study. The researcher was able to show different factors that lead to the procurement effectiveness and among them was; lead time performance, cost efficiency, law compliance, ethical practices and effective procurement audit. In the discussion, the researcher referred the procurement audit as a watchdog of the entire procurement process in the public sector since no assurance on the behavior and conducts of procurement professionals. However the study did not show in what extent is procurement audit an important tool to watch over the entire procurement function in the sector.



**Figure 1 Conceptual framework**

Source: Modified from (Mwarizo, 2021; Drozd et al., 2021; Joesbury, 2016)

Table 1: Operationalization Matrix

Variables	Variable definition (code)	Measurement scale
<b>Compliance audit</b>	Law compliance (COM1), Procurement standards adherence (COM2), Environmental law compliance (COM3), Standard operating procedure (COM 4), Procurement policies (COM 5)	The agreement extent to the influence of compliance audit on the procurement effectiveness of public organization in Tanzania (1-5 Likert scale)
<b>Value For Money audit</b>	Economy (VFM 1), Total Quality Management (VFM 2), Effectiveness (VFM 3), Efficiency (VFM 4), Outsourcing (VFM 5)	The agreement extent to the influence of value for money audit on the procurement effectiveness of public organizations in Tanzania (1-5 Likert scale)
<b>Strategic audit</b>	Procurement goals (STR 1), Alignment to organizational vision(STR 2), Alignment to organization mission (STR 3), Supplier buyer relationship (STR 4), Supply Chain Integration (STR 5)	The agreement extent to the influence of strategic audit on the procurement effectiveness of public organizations in Tanzania (1-5 Likert scale)
<b>Procurement Effectiveness</b>	Procurement results (PRO 1), Time delivery and quality (PRO 2), Annual Procurement Plan performance (PRO 3), Contract management and relation (PRO 4), Law compliance (PRO 5).	The agreement extent to the attainment of procurement effectiveness as a result of the implemented procurement audits in the public sector in Tanzania (1-5 Likert scale)

Source: Modified from (Mshamu, 2020; Mwarizo, 2021; LAC, 2014; Joesbury, 2016).

### 3. Research Methodology

#### 3.1. Research Design

The study adopted a cross sectional survey design with an analytical approach. Since the study employed a quantitative approach, the accepted design enabled the collection of information from a wide range of area and population at once, and helps the researcher explore, analyse and understand well the subject matter to generalize the findings to a large extent. The study was limited to examine the influence of the three types of procurement audit on the procurement effectiveness of public organizations in Tanzania, specifically the Tanzania Revenue Authority (TRA), Tanzania Telecommunications Company Limited (TTCL), Dar es salaam City Council (DCC), Medical Stores Department (MSD) and Tanzania Electric Supply Company Limited (TANESCO). The composition of these five selected organizations fulfil the definition of public organizations all together, as there is an authority, a council, a limited company, a corporation and a department to represent all other public organizations left.

### 3.2 Population and Sample Size of the Study

The study population included procurement officials, internal auditors and managerial officials (managers) from the five selected organizations whose total was 250 (as per the preliminary survey conducted prior to the main study). To draw a sample size from the study's population which was 250 staffs of the five selected organizations in Dar es Salaam, the researcher used the famous formula developed by Yamane (1967). With a 5 % margin of error, the sample size obtained was 154 respondents out of 250.

$$n = N \div (1 + N(e)^2)$$

**Table 2: The Selection of Sample**

<b>Organization</b>	<b>No. of elements</b>	<b>Sample</b>	<b>Percentage</b>
TRA	61	31	51%
TANESCO	52	31	60%
DCC	35	30	86%
TTCL	50	31	62%
MSD	52	31	60%
<b>Total</b>	<b>250</b>	<b>154</b>	<b>62%</b>

Source: Field survey (2022)

### 3.3 Sampling Technique

Snowball sampling technique was adopted due to the ease of identifying the needed respondents and assurance that the selected respondents consists of the pre-defined characteristics needed to participate in this study as a respondent. The researcher placed efforts to identify the first elements / respondents in each organization and after gathering information from them they helped to identify other respondents to be included as per the listed criteria and the process went on until the desired number of respondents was reached.

### 3.4 Data and Data Collection Method

The study adopted both primary data and secondary data to generate a wholesome conclusion on the relationship of the studied variables. The researcher collected primary data via well designed questionnaires that were formulated to capture both, the demographic features of the respondents and the variable information on the three procurement audit types and their influence towards procurement effectiveness in the five selected organizations. With the documentary review, secondary data were reviewed to aid and support the primary findings generated. The secondary data collected came from four annual performance evaluation reports of PPRA (2017 to 2021).

### 3.5 Data Analysis

The study adopted Pearson correlation to explore the relationship and strength of the relationship between each independent variable and the dependent variable, the direction of the relationship and its strength. While multiple regression was used to explore the predictive ability of a set of three continuous independent variables (procurement audit types) on one continuous dependent variable (procurement effectiveness). However the collected information from the reviewed documents were analysed thematically.

## 4. Findings and Discussion

### 4.1 Reliability Test Results

The overall alpha coefficient in this test was 0.914. All the four variables used in this study were measured on a multi-dimensional basis using the IBM SPSS version 23 and all four variables had an alpha value of above 0.8 as shown in table below.

**Table 3: Reliability Statistics**

Cronbach's Alpha	N of Items
.914	4

Source: Study findings, 2020

**Table 4: Data reliability breakdown; Cronbach's Alpha**

Construct	Variable items	( $\alpha$ )
Compliance audit	Com1, Com2, Com3, Com4, Com5	0.94
Value for money audit	Vfm1, Vfm2, Vfm3, Vfm4, Vfm5	0.91
Strategic audit	Str1, Str2, Str3, Str4, Str5,	0.89
Procurement effectiveness	Pro1, Pro2, Pro3, Pro4, Pro5	0.92

Source: Study findings, 2022

### 4.2. Validity of Data

The designed survey questions were originated from well-known models and theories so as to maintain construct validity and the use of 5 points likert scale format to ensure content validity of all the variables.

### 4.3. Pearson Correlation Analysis

Pearson correlation output usually shows the significance, strength and direction (positive or negative) of the relationship of the studied variable. In determining if there is a relationship we normally observe the p-value obtained and in determining the strength and direction we observe the correlation coefficient value. The following table shows the results of Pearson correlation.

**Table 5: Correlations**

		COMPL IANCE	VALUE_ FOR_MO NEY	STRATE GIC	PROCURE MENT_PE RFOMANC E
COMPLIAN CE	Pearson Correlation	1			
	Sig. (2-tailed)				
	N	154			
VALUE_FO R_MONEY	Pearson Correlation	.460**	1		
	Sig. (2-tailed)	.000			

	N	154	154		
STRATEGI C	Pearson Correlation	.481**	.668**	1	
	Sig. (2-tailed)	.000	.000		
	N	154	154	154	
PROCURE MENT_PER	Pearson Correlation	.460**	1.000**	.668**	1
	Sig. (2-tailed)	.000	.000	.000	
FOMANCE	N	154	154	154	154

Source: Study Findings (2022)

#### 4.3.1. Compliance Audit and Procurement Effectiveness

The above results show that there is a significant relationship between the compliance audit objectives in public sector and the procurement effectiveness of the public organizations. This is evidenced by the p-value obtained (0.000) which is less than the alpha value of 0.05. The value of the correlation coefficient was 0.460 which falls under the coefficient range of  $\pm 0.4$  to  $\pm 0.59$ . This implies that there is a moderate positive relationship between the implemented compliance audit objectives and the procurement effectiveness of public in Tanzania.

#### 4.3.2. Value for Money Audit and Procurement Effectiveness

The findings also show that, there is a significant relationship between the implemented value for money audit in public sector and the procurement effectiveness of the public organisation in Tanzania. This was evidenced by the p-value obtained, that was 0.000 which is less than the alpha value of 0.05. Furthermore, there is a positive very strong relationship between the implemented value for money audit objectives and the procurement effectiveness of public sector in the country. The correlation coefficient obtained was 1.000 which falls under the coefficient range of  $\pm 0.8$  to  $\pm 1.00$  which depicts a very strong relationship.

#### 4.3.3. Strategic Audit and Procurement Effectiveness

The Pearson analysis also revealed that, there is a significant relationship between the implemented strategic audit and the procurement effectiveness of the public organizations in Tanzania. This was shown by the obtained p-value that is 0.000 which is less than alpha value of 0.05. In exploring the strength and direction of the relationship, it was found that there is a positive strong relationship between strategic audit implemented in public sector and the procurement effectiveness of public organization in the country. This was shown by the correlation coefficient ( $r$ ) obtained that is 0.668 which is positive and falls under the coefficient range of  $\pm 0.6$  to  $\pm 0.79$ .

### 4.4 Multiple Regression Analysis

#### 4.4.1. Model Summary Results

From the table below, the score of R square that is 0.859 shows that the model (which includes all three independent variables) explains 85.9% of the variance in procurement effectiveness, leaving only 14.1% unexplained. Generally, the used model was very good for the prediction of the relationship between independent and dependent variable.

**Table 6: Model summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.927 <sup>a</sup>	.859	.854	.21307

a. Predictors: (Constant) COMPLIANCE, VALUE FOR MONEY, STRATEGIC

b. Dependent Variable: PROCUREMENT EFFECTIVENESS

Source: Study findings (2022)

#### 4.4.2. Analysis of Variance (ANOVA)

The analysis of variance (ANOVA) summary table shows the statistical adequacy of the used model. From the table below, the p-value / significance level is 0.000 which is less than 0.05 and F-test result is 58.098. These results shows that the model explains well the dependent variable and it is accepted as a better predictor for population values and the model can be generalized in the entire sector in Tanzania.

Table 7: ANOVA

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	40.880	5	8.176	58.098	.000 <sup>b</sup>
	Residual	6.719	148	.045		
	Total	47.599	153			

a. Dependent Variable: PROCUREMENT\_EFFECTIVENESS

b. Predictors: (Constant), COMPLIANCE, VALUE\_FOR\_MONEY, STRATEGIC

Source: Study findings (2022)

#### 4.4.3. Coefficient Results

In this analysis, reference will be made on the standardized coefficient Beta (since the study based on the conceptual model and not the equation) and sig (p-value) to make some inferences on the explored relationship.

Table 8: Coefficients Results

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
		1	(Constant)	.070		
	COMPLIANCE	.247	.062	.223	3.964	.000
	VALUE_FOR_MONEY	1.009	.080	.849	12.538	.000
	STRATEGIC	.096	.083	.098	1.154	.251

a. Dependent variable: Procurement effectiveness

Source: Study findings (2022)

The influence of the implemented compliance audit on the procurement effectiveness of public organization. Results from table 1.8 above shows that, compliance audit have a significant influence to the prediction of procurement effectiveness of public organizations from the observed sig value score of 0.000 which is less than 0.05. From the obtained Beta coefficients, compliance audit have a Beta coefficient value of 0.223 in explaining the procurement effectiveness of public organization. This means, procurement effectiveness increases by 0.223 for every improvement of the implemented compliance audit. These results supports hypothesis 1, hence H1 was accepted. The findings above were compatible to that of (Mwarizo, 2021). In both studies, the implemented compliance audit were observed to be of significance on predicting the procurement effectiveness in public organisation in Tanzania.

Furthermore, the findings concur with that of Mwarizo (2021) as both studies found that there is a contribution of procurement audit on procurement effectiveness. However, this study showed that the predictive ability of compliance audit on the procurement effectiveness (beta ( $\beta$ ) coefficient was 0.223) unlike Mwarizo (2021) were the findings did not show a direct statistical link between the procurement audit objectives and procurement effectiveness in public organization in Tanzania

The influence of the implemented value for money audit on the procurement effectiveness of public organizations. Findings reveal that, the implemented value for money audit objectives have a significant influence to the prediction of procurement effectiveness of public organizations from the obtained sig value of 0.000 which is less than 0.05. The standardized Beta coefficient of 0.849 which value for money audit objectives have scored in predicting the procurement effectiveness means, by every one unit improvement in the implementation of value for money auditing objectives, the procurement effectiveness increases by 0.849. These results supports hypothesis 2, hence H2 was accepted. These findings concur that of Mshamu (2020). In assessing the effectiveness of procurement process, one of the factor that was listed as an influencer to procurement effectiveness was value for money audit. This implies that the implementation of the value for money audit objective is very important in influencing procurement effectiveness.

The findings also are compatible to that of Jembe and Wandera (2019) that also revealed that procurement audit through the value for money implemented audit contribute much on the procurement effectiveness, despite the study basing on private sector. This means without considering the sector (private/public) value for money audit objectives and value for money procurement at large positively influence the improvement and achievement of procurement effectiveness.

PPRA 2019 also showed the same, in the financial year ending June 2019 the value for money audit and objectives in particular were found to be of much contribution to the procurement effectiveness in public sector like in this study, were the prediction ability of value for money audit was large (0.849) compared to other two independent variables. This shows that, in Tanzania value for money audit objectives are much relevant in the prediction of procurement effectiveness than all other factors.

The influence of the implemented strategic audit on the procurement effectiveness of public organizations. With a sig value of 0.251 which is greater than 0.05, the implemented strategic audit objectives have an insignificant contribution to the prediction / influence of procurement effectiveness of public organizations in Tanzania. This can also be proven by the Beta coefficient value of 0.098 that the independent variable has scored. This means the procurement effectiveness will slight increase by 0.098 for every improvement in implementing the strategic audit in the public organizations in the country. These results do not support hypothesis 3, hence H3 was rejected. The findings differ to that of Etse and Asenso-Boakye (2020), as that particular study which was conducted in Ghana revealed a significant relationship between the implemented strategic audit objective and procurement effectiveness. The difference might be due to the difference in the study area of the two studies.

The study's findings also diverge from that of Bonnie et al (2016) which showed the presence of significant contribution of the implemented strategic audit objectives of the procurement effectiveness and performance. Despite the study been descriptive and not showing the exactly numerical contribution of the variable, the difference of the findings have also been attributed by the fact that, in Canada where Bonnie et al., (2016) conducted, the study, there are five procurement audit types including the strategic one unlike in Tanzania where only compliance and value for money auditing are the mainly performed audits. For this reason, one is likely to find strategic audit significant relevant in Canada's procurement effectiveness attainment than in Tanzania.

## 5. Conclusion & Recommendations

### 5.1 Conclusion

Generally, the study was successful in filling the literature gap that was present prior to the study. The study was able to examine the influence of three procurement types that are applicable in Tanzanian public sector towards procurement effectiveness. The study revealed the presence of a stable relationship between procurement audits implemented in Tanzanian public sector and the procurement effectiveness in the sector. The study concluded that, both compliance and value for money audit have a positive influence towards procurement effectiveness in the public sector. That is to say that, any improvement and effective compliance and value for money audit leads to enhancement of preserving and achieving procurement effectiveness in the sector. Unlike the two types of

procurement audit, the strategic audit was revealed to have an insignificant contribution towards the procurement effectiveness. That is to say, currently the practice of strategic procurement audit does not necessarily prompt procurement effectiveness in the public sector. Public entities can continue the practice of strategic audit by their own justification since it is not mandatory in Tanzania and without expectations of influencing procurement effectiveness.

## 5.2 Recommendations

The government of the United Republic of Tanzania and specifically the Ministry of Finance and Planning should emphasize and ensure the observed matters and recommendations given by procurement auditors on public organizations are clearly dealt with in order to improve procurement effectiveness of the public sectors.

Being the regulatory authority and responsible organ for the procurement audit in public sector, PPRA should improve the procurement audit to strengthen the procurement function and funds management.

The public organizations including TRA, TTCL, DCC, MSD and TANESCO should ensure they have a proper procurement audit as the demand of law not only for countering corruptions and embezzlements but for the sake of achieving the procurement goals and attaining procurement effectiveness in the public sector.

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