

## EFFECTIVENESS OF IMPLEMENTING TOTAL QUALITY MANAGEMENT IN PROCUREMENT FUNCTION IN PUBLIC INSTITUTIONS: A CASE STUDY OF MOI UNIVERSITY

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### ABSTRACT

Total Quality Management (TQM) has emerged as an important contributor to effective procurement procedures in public institutions. Modern TQM has emerged as a management approach based on a set of fundamental quality principles and outfitted with a toolbox of diverse techniques and procedures that provides guidance and structure in the practical affairs of running an organization effectively. The main objective of the study was to investigate the effectiveness of implementing TQM in the procurement procedures in public institutions. This research sought to determine effects of TQM on public procurement procedures, by gauging the opinions of the members of management, deans, chairpersons of Academic departments, heads of administrative department/sections and procurement staff of Moi University. This study employed explanatory research design and questionnaires in data gathering. It was a case study of Moi University and therefore adopted census technique to sample ten (10) Deans, thirty two (32) heads of academic department, twelve (12) heads of administrative department, twenty four (24) procurement staff, seven (7) finance staff and five (5) members of management giving a total of ninety (90) respondents. Data was collected using structured questionnaire and secondary data from 2013 procurement and financial reports. Analyses were conducted through descriptive statistics and Ordinary Least Square regression technique. Correlation analysis showed that all the independent variables (strategic leadership, continuous improvement, communication and teamwork had some positive relationship with the dependent variable (i.e. Procurement functions). From

regression test, adjusted R square was 0.581 showing that all the independent variables accounts for 58.1% of the procurement functions. Statistically, the overall relationship was very significant with significant value, P value = 0.000, ( $P < 0.05$ ), and finally concludes that strategic leadership and process/continuous improvement are positive predictors of procurement functions.

**KEY WORDS:** Quality Management System, Procurement, Total Quality Management.

## INTRODUCTION

Procurement may be defined as the acquisition of goods, works and services. This embraces not only purchasing, that is, buying of goods, but it also includes hiring of contracts or consultants to carry out services, (Powel, 1995). Standards required in procurement are high quality service, economy and efficiency, and fairness in competition. Thus a procedure must be followed and is applicable to all contracts for goods and works (McCruden, 2004). Any improvements in the public procurement system can have a direct and beneficial effect on the overall economic situation of a country. One measure of this fact is the emphasis which the World Bank and regional institutions like the African Development Bank are placing on assisting developing countries to review and revise their procurement systems. Within the Africa region, over one fourth of the countries has or will have an active public procurement improvement programme (Witig, 1999). It therefore became necessary to implement Total Quality Management (TQM) in public procurement to reform procurement practices and procedures to conform to international standard.

TQM has been regarded as one of effective ways for firms to improve their competitive advantage (Kuei *et al.*, 2001). Leading pioneers in the quality area, such as Deming (1986) and Juran (1993), asserted that competitive advantage can be gained by providing quality products or services. Additionally, Eng and Yusof (2003) argued that quality holds the key competitiveness

in today's global market. In addition, TQM has been widely considered as an effective management tool to provide business with stability, growth, and prosperity (Issac *et al.*, 2004).

The benefits of quality improvement cannot only be reflected on decreasing costs, but also on maximizing business profits. In terms of quality improvement, what really counts for a firm is not just cost minimization, but the effect of superior quality has on maximizing profits (Freiesleben, 2005). Thus, the study of the implementation of quality management systems in public procurement is critical for public institutions and researchers to better understand its effects and challenges in relation to public procurement procedures. Effective public procurement systems are systems that are defined as offering a high level of transparency, accountability and value for money in the application of a procurement budget. The benefits of an effective TQM implementation can be studied with three different perspectives. Firstly, from the operating angle, the reason that TQM has become a hot topic in both industry and academia is that it can be applied to improve/enhance global competitiveness (Samson and Terziovski, 1999). Organizations and institutions with effective TQM implementation can accomplish the internal benefits such as improving quality, enhancing productivity, or realizing better operating income (Corbett *et al.*, 2005).

### Statement of the Problem

Quality practices have been shown to enhance organizational performance for both product and service organizations (Powell, 1995). However, there is relatively little research on the effects of quality management practices on public institution's operations. To be specific, there is little known about adoption of quality management practices in public institutions and its implications

on public procurement procedures. Rather, the growing body of research on quality management in public sector has focused on customer perceptions of quality and satisfaction rather than organizational knowledge of quality practices in its operations (Anderson, Fornell, & Rust, 1997).

Furthermore, recent studies have examined the relationship between total quality management and various levels of business performance (Das *et al.*, 2000; Kaynak, 2003; Mohrman *et al.*, 1995). Although many results of prior studies supported the positive effects of TQM on organizational performance (Hendricks & Singhal, 1997; Kaynak, 2003; Terziovski & Samson, 1999), there were several researches which found the implementation of TQM might lead to ineffectiveness of firm performance (Choi & Eboch, 1998; Lemak *et al.*, 1997; Reed *et al.*, 1996).

This study therefore will look at the implementation of quality management in procurement procedures in public institutions, with the aim of setting highlights on the challenges and its implications on the public procurement in Kenya. The study will empirically examine the extent to which TQM and public procurement are correlated and how TQM affects procedures of procurement in public universities in Kenya.

### **General Objective**

The general objective of this study was to investigate effectiveness of implementing Total Quality Management on procurement management in public institutions in Kenya, using Moi University as a case study.

### Specific objectives

This study was guided by the following objectives:

- i. To determine effects of strategic leadership on procurement function in public sector in Kenya;
- ii. To determine the effects of process/continuous improvement policy on procurement function in public sector in Kenya;
- iii. To determine the effects of communication and teamwork on procurement function in public sector in Kenya;
- iv. To establish TQM practices and its effects on customer satisfaction/satisfaction of procurement services in public institutions in Kenya;

### Scope of the Study

The study was carried out in Moi University and focused on implementation of quality management systems and its effects on the public procurement. It targeted members of management and procurement section staff to provide necessary information. The time for study is between September to December 2014.

### Significance of the Study

The findings of this research project will provide understanding on the challenges of implementing quality management systems in procurement systems, and in what ways do quality management practice help improve procurement procedures in public sector. Many public institutions in Kenya will find this study very valuable to their procurement operations and more so a benchmark to decisions to improve on public procurement procedures.

The policy makers in the Ministry of Finance and other state agencies will find the study useful as a basis of formulating policies, which can be effectively implemented for better and easier procurement regulations. The government will use the study so as to come up with policies and ways of promoting better services to the public. The empirical results would also provide general indicators of the benefits of TQM practices on public procurement. Other researchers and academic community will use this study as a basis for further studies on the same or related topics.

## LITERATURE REVIEW

### An Overview of TQM Theory

The commitment to TQM originates at the chief executive level in a business and is promoted in all human activities. The accomplishment of quality is thus achieved by personal involvement and accountability, devoted to a continuous improvement process, with measurable levels of performance by all concerned. It involves every department, function and process in a business and the active commitment of all employees to meeting customer needs. In this regard the customers' of each employee are separately and individually identified. (John and Richard, 1996). With Total Quality Management, the whole organization works together to guarantee, and systematically improve, product quality. The aim is to make product of perfect quality – with zero defects (Donald Waters, 1999).

### The KRALI Model for TQM

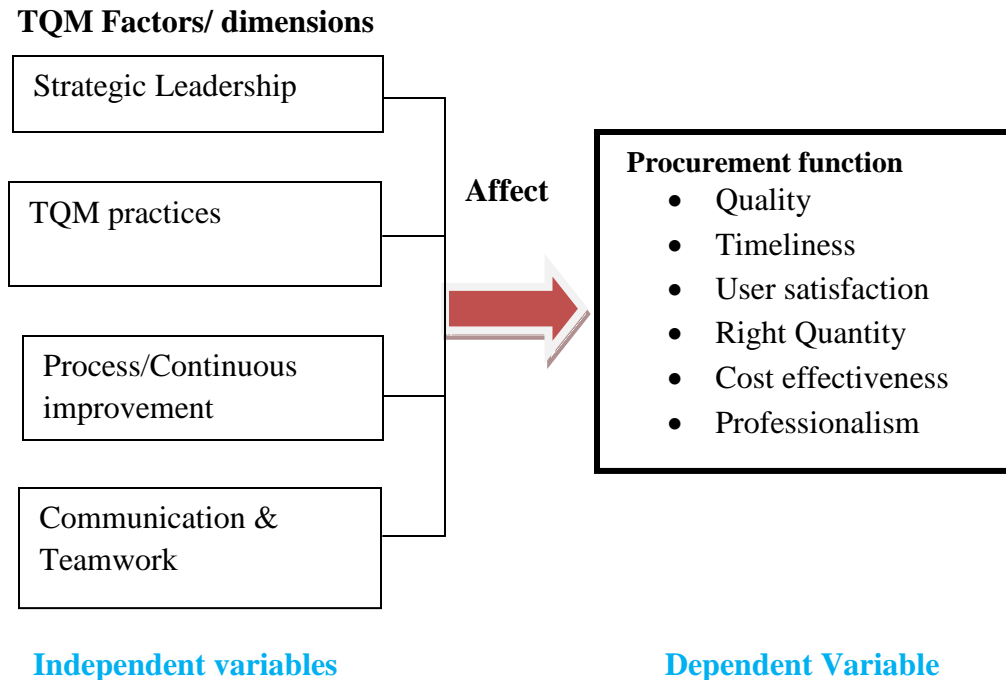
Temtime (2002) focusing on developing countries, has advised that future research should closely “focus on the development and introduction of total quality management (TQM) implementation frameworks” as they tend to work better for small and medium institutions than

try and imitate the larger firms' styles who usually engage in large projects. It is in this light that the KRALI framework for TQM implementation was designed. The model draws from the Deming cycle in which Deming, one of the quality gurus of TQM, proposes a Plan-Do-Check-Act continuous improvement model commonly referred to as the PDCA. It is acknowledged from the onset that, the implementation of Total Quality Management (TQM) is a complex process (Yusof, 2000) as it involves many changes to how organisations carry out their business.

Many organizations find themselves stuck in this complex task with not much progress as the working culture may act against the change idea. Many institutions in developing world are known to operate on 'shoe-string' budgets and hence introducing TQM becomes an almost impossible mission. However, because of the importance that the institutions are attached to regarding a country's economy (Temtime 2001; Karjalainen and Kempainen 2008), they have to devise means and ways to work through the difficult task of ensuring that TQM is implemented. As a matter of facts, this study draws from the works of many writers (Yusof and Aspinwall 2000; van der Wiele 2002; Ghobadian and Gallear 1999; Ghobadian and Gallear 1997 and Ooi 2009) towards the successful implementation of TQM.

### **Conceptual framework**

From the review of the above model/framework, it became evident that various researchers agree that the above premise is in accordance with the philosophy that underpins TQM. Based on the above model and logical reasoning, conceptual model below is derived:



**Figure 2.2 – Conceptual Framework**

The above conceptual framework addresses the research objectives specified above. The adoption and implementation of TQM practices influences procurement procedures. However, the form of implementation of TQM principles (formally or informally) may differ from one firm to another depending on management's perceptions and understanding of the concepts along with other internal capabilities.

## RESEARCH METHODOLOGY

### Research Design

In order to explore effects of TQM implementation on procurement procedures in public institutions in Kenya, this research study used explanatory design to collect a snap shot of data and analysis of the relationships between study variables. The design was more appropriate as it



enabled respondents to give their relevant information on the issue of interest to the study, (Babbie, 2007).

## DATA PRESENTATION AND INTERPRETATIONS

### Correlation Analysis

The first step was to construct correlation matrix for various possible combinations of dependent and independent variables. Relationship measurement is shown by the Pearson Product-Moment Correlation Coefficient (r), or correlation coefficient which is a measure of the degree of linear relationship between variables (for this case strategic leadership, process/continuous improvement, communication and teamwork and procurement functions). The outcome of the correlation test was the understated correlation matrix as shown below.

**Table 4.7 - Correlation Matrix**

Correlations matrix		Strategic leadership	Process/Continuous improvement	Communication and teamwork	Procurement functions
Strategic leadership	Pearson Correlation	1			
	Sig. (2-tailed)				
	Sample (N)	81			
Process/Continuous improvement	Pearson Correlation	0.676	1		
	Sig. (2-tailed)	0.000			
	Sample (N)	75	78		
Communication and teamwork	Pearson Correlation	0.801	0.812	1	
	Sig. (2-tailed)	0.000	0.000		
	Sample (N)	78	75	81	
Procurement functions	Pearson Correlation	0.693	0.583	0.540	1

	Sig. (2-tailed)	0.000	0.000	0.000	
	Sample (N)	75	72	75	78

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

From the respondent's point of view, all the predictors showed a positive relationship as indicated in the matrix above. Strategic leadership showed a positive relationship with procurement function, (Pearson's  $r=0.693$ ,  $p<0.000$ ), Process/Continuous improvement, (Pearson's  $r=0.583$ ,  $p<0.000$ ), communication and teamwork, (Pearson's  $r=0.540$ ,  $p<0.000$ ) as shown in table matrix above. Generally, it was established that all the independent variables had some positive relationship with the dependent variable (i.e. Procurement functions).

### Regression Analysis

The summary of multiple regression together with the ANOVA is presented below. Procurement functions (Y) as a function of; strategic leadership  $X_1$ , continuous improvement  $X_2$ , communication and teamwork  $X_3$ . From the table below, adjusted R square is 0.581 showing a relationship between the observed and predicted values of the dependent variable. This indicates that all the independent variables accounts for 58.1% of the procurement functions.

**Table 4.8 - Model summary**

Model Summary					
Model		R	R Square	Adjusted R Square	Std. Error of the Estimate
	1	0.775	0.600	0.581	0.72623
a. Predictors: (Constant), Communication & teamwork, Strategic leadership, Process/Continuous improvement					

On the other hand, ANOVA table shows results of analysis of variance, sum of squares, degree of freedom (df), mean square, regression and residual values obtained from regression analysis. From table 4.9 below, the mean square is 16.360. The F static which is regression mean square divided by the residual mean was 31.020. Degree of freedom df was 3.00. Statistically, the overall relationship was very significant with significant value, P value = 0.000, ( $P < 0.05$ ) as shown below.

**Table 4.9 - ANOVA**

ANOVA <sup>b</sup>						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	49.081	3	16.360	31.020	.000
	Residual	32.699	62	.527		
	Total	81.780	65			
a. Predictors: (Constant), Communication & teamwork, Strategic leadership, Process/Continuous improvement						
b. Dependent Variable: Procurement functions						

From the coefficient table below, the first variable (constant) represents the constant, also referred to in books as the Y intercept, the height of the regression line when it crosses the Y axis. In other words, this is the predicted value of procurement function when all other variables are 0. The Beta values ( $\beta$ ) are the values for the regression equation for predicting the dependent variable from the independent variable.

In this case, interpretation of beta coefficients means that holding all other independent variables constant, every unit change on strategic leadership improves procurement functions by 0.903, while process/continuous improvement improves procurement function by 0.155 and finally communication and teamwork has a negative influence by -0.330. Therefore, strategic leadership and process/continuous improvement are positive predictors of procurement functions as shown in table 4.10 below.

**Table 4.10 - Regression Coefficients**

Coefficients <sup>a</sup>								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-.276	.495		-.559	.578		
	Strategic leadership	1.291	.205	.903	6.311	.000	.315	3.173
	Process/Continuous improvement	.190	.217	.155	.877	.384	.208	4.817
	Communication & teamwork	-.441	.241	-.330	-1.833	.072	.199	5.030

a. Dependent Variable: Procurement functions

To ascertain for multi-collinearity a test was carried out and variance inflation factor (VIF) and Tolerance value were checked. If VIF value is below 10 and Tolerance value is above 0.1, it means there is no multi-collinearity among independent variables. From the findings, VIF value was less than 10 and tolerance value greater than 0.1, so multi-collinearity did not exist in the independent variables.

## Discussion of the Findings

From this study there is a statistically significant relationship between TQM practices and procurement performance in public sector. This conclusion is different from that of Rao *et al.* (1997) who found that quality standards in procurement do not affect procurement functions and operations. To identify possible reasons for such disagreement, findings of other studies focusing on procurement operations and other possible intervening variables are examined in the following sections.

A study conducted by Terziovski and Samson (1999) in Australia and New Zealand on manufacturing firms reported that there were significant differences in the relationship between TQM and procurement performance across industry sectors and size of the firms, industry type and ownership. Ismail and Hashmi (2009) and Kie and Palmer (2008) also found that the adoption of TQM and its corresponding effectiveness were dependent on site size/number of employees. Wiele and Brown (1997/1998), in their study in Australia, found that most small and medium-sized enterprises (SMEs) seemingly felt forced by their customers to go for ISO 9000 certification and did not move further down the quality path. Goh and Ridgway (1994) reported very similar findings on SMEs in the UK.

In the study of Rao *et al.* (1997), about 77% of the responses came from the manufacturing industries (500 out of 649). Moreover, their sample did not include the construction industry. The

present study, however, has more respondents from the service and construction industries (i.e. 38 and 34%, respectively) than from the manufacturing industry. Therefore, it may be possible that in the case of Singapore the effects of ISO may be industry sensitive. It is therefore very likely that since the institution selected in the present study is not identical to that of the study of Rao *et al.* (1997), a different result may be possible. It is likely that the conclusions drawn by Rao *et al.* (1997), may be more applicable specifically to the manufacturing industry, but not to all industries and organizations in general.

### Conclusions

Finding of this study serves as guidelines for management to formulate the improvement plan in procurement services within the organization. These guidelines however are not a universal panacea but can be used as reference especially for practitioners and researchers. There is no single or best approach of TQM practices that can improve procurement operations. This is because organizations are different in terms of for example their people, history, goals, vision, structure, products, processes and culture. The ability to combine their own uniqueness with the existing TQM system will lead them into organization excellence. This finding is certainly useful for both practical and theoretical purposes. However, further research could be explored on other variety of samples, approaches and setting to generalize the results.

## Recommendations

This study suggests that all of the TQM factors need to be recognized as a potential factor for procurement performance and product/service quality of public institutions in Kenya. The following are recommendations emanating from this study:

First, it is advisable for top management to ensure the proper implementation of the quality objectives. Top management should provide evidence to prove its close monitoring for the implementation of the pre-set Quality Objectives. This is one way of ensuring that TQM is adopted in all sections of the institution.

Secondly, there is need for public institutions to acquire ISO 9000 certifications, for quality management procedures and standards. Frequent audits should be planned to ensure continuity in adhering to the quality standards and procedures. Quality auditors should change their auditing style to attempt to benefit the auditee organization and try to look for opportunities for improvements, rather than seeking for the auditees' mistakes.

Thirdly, the process of implementing quality management systems within the organization need to involve all cadres of employees, to ensure the continuity of the good performance, enthusiasm, and loyalty. This can be ensured by offering prizes, appreciations, recognition, rewarding and providing employees with opportunities to upgrade their qualifications (e.g. training and post graduate studying), and the like.

Fourth, there must be an effective communications channels. This plays a key role in the successful change management process, as it assists the organization a lot in applying the change

management principles prior, during and following the implementation process for any quality management system in the organization. The effective communications also increase the workers' awareness and knowledge regarding the quality management theories in general and how it can be incorporated in their daily work.

Fifth, organizations should make proper use of the TQM continual improvement tools, as it puts the organization in the continual improvement track. For instance, top management of the organization should keep up with the enthusiasm and commitment to the certifications such as ISO 9000 prior and following the certification audits and should not take the ISO 9000 certificate as a destination.



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