

Influence of Supplier Relationship on Performance of Procurement Function at MOI Teaching and Referral Hospital, Kenya

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Abstract: Supplier relationship management plays an important role in the procurement function because suppliers can have influence on the price, quality, delivery reliability and accessibility of its products. Supplier performance is critical to ensure a well-functioning supply chain and to a company's competitive position. Despite the growing concerns that procurement is an important part of health care institutions, public hospitals still undergo challenges in managing their suppliers. The main objective of the study was to determine the influence of supplier relationship on performance of procurement function at Moi Teaching and Referral Hospital, Kenya. The study used grey system theory, lean supplier competence model and fuzzy set theory. Descriptive research design was used in conducting the study. The target population was 120 employees from MTRH procurement function. Simple random sampling technique was used to select the sample size. Sampling units for the study entailed senior management officers, procurement officers and warehouse staff. The study used questionnaires with both open and close ended questions in collecting data. Pilot study was conducted at Kisii Teaching & Referral Hospital to test validity and reliability of the questionnaires. Data analysis will be facilitated using SPSS software. Reliability was tested using Cronbach alpha 0.7. Data was analyzed using both descriptive statistics (frequencies, standard deviation, mean and percentages) and inferential statistics using multiple regression model and correlation. The study used Pearson correlation model to determine the existing relationship between the study variables. The study findings revealed that all study variables (supplier segmentation $\beta=0.329$, $p<0.05$, supplier evaluation $\beta=0.182$, $p<0.05$ and supplier development $\beta=0.163$, $p<0.05$ positively and significantly influence the performance of procurement function of MTRH. The study tested regression model assumptions of normality, linearity, homoscedasticity, multicollinearity and independence of errors. Results of the study established that all assumptions were not violated by the study. The study recommends that procurement functions under their respective heads should incorporate supplier relationship practices to improve their performances. Future studies should be conducted in other referral hospital to further explore on supplier relationship influence on performance. The study also recommends future studies to incorporate other variables not included in the study. The study also gives room for future studies to be conducted in other parastatals like KEMRI and KURA.

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I. Introduction

1.1 Background of the Study

Procurement function plays a key role in every organization. It provides an opportunity for all stakeholders to meet and discuss procurement requirements and objectives that can help to improve the organizational developments. The globalization of economy, reduced product life cycle, continuous change in customer expectation and intensified competition due to use of advanced technology has led to revolution of industries in the entire supply chain. Well managed buyer-supplier relationship plays a critical role in improving procurement performance of both the buyer and the supplier (Andersen & Water, 2013). Profit and competitiveness of a firm solely relies on its capability to effectively and efficiently manage the relationship between the buyer and supplier (Kemunto & Ngugi, 2014).

Supplier segmentation is about determining the kind of interactions to have with various suppliers. Segmentation involves series of activities that not only include management of set of syndicated transactions, but also well planned and coordinated manner of transactions across the organization. Segmentation of suppliers can be done taking into consideration spend and the estimated total value (measured across multiple dimensions)

to be achieved in the entire supplier segmentation process. Further, potential risk and risk mitigation accrued from the potential benefits is a factor to consider in segmentation (Daugherty, 2011). Segmentation enables firms to deal with each segment separately from another. Geographical proximity, income level or occupation of individuals to be segmented are some of the factors to consider in segmentation.

Supplier evaluation is detailed step by step process of identifying potential suppliers. Technical and financial capabilities are the most common forms of supplier evaluations. Quality and cost are the in-depth factors for supplier evaluation by firms. Globalization has enabled firms to source suppliers across the globe. This has also enabled suppliers to collaborate and provide quality products. Decline in manufacturing industry performance in America making its total GDP contribution is attributed to poor manufacturing and suppliers evaluation (Aseka, 2010). Poor supplier evaluation leads to increased production cost with a corresponding fall in gross operating profit margin to profit gross operating margin (Carter, 2010).

Supplier development is defined as any efforts made a buying firm to increase the performance and capabilities of the supplier. Sole benefit of supplier development among others include competitive advantage (Ochieng, 2014). Nowadays, most manufacturing firms have resolved to supplier development practices. This is with an aim of improving their production capability and increasing competitive advantage. Research institutions have focused on supplier development programs and explore how these initiatives impact on buyer and supplier performance (Kemunto, 2014). Efforts to examine the use of certain supplier development activities have been futile. This is because the antecedents and work done by several scholars are descriptive and case study in nature. Most of these studies put much emphasis on commonly used supplier development practices in both US and European countries (Jens, 2014).

1.1.2 Global Perspective of Supplier Relationship Practices

Globally, role played by supplier relationship management revolves around price, quality, delivery reliability and accessibility of supplier products. Most firms therefore put in place measures to effectively and efficiently manage supplier relationship. Because of this, firms have experienced success in their procurement (Johnson *et. al.*, 2011). In USA, firms have resolved to creating partnerships and maintaining long lasting relationships in a bid to improve their performances. Willingness of firms to receive frequent deliveries, incentive to assist and develop their suppliers has enabled them to establish close relationships with them. Competitive advantage of firms in Japan traces back to well managed supplier relationships (Aseka, 2010). These firms closely monitor quality, delivery, and responsiveness of their suppliers in accordance to specifications.

In Malaysia, quality management, reduced lead times, increased responsiveness to customers are some of the success factors behind effective supplier relationship management (Nasra, 2014). Other benefits include customer loyalty, increased profitability and reduced opportunity cost from lost sales due to effective communication between the organization and suppliers through the customers. Having a functional supplier relationship management system enables organizations to conduct acquisition of products in a professional manner, identify potential risks, carry out systematic process and ensure specifications are met by their suppliers. Also, buyers have an opportunity to have an insight into their suppliers through supplier relationship management (Moore, 2012).

Supplier relationship has been enhanced in South Korea through supplier quality evaluation (Krause, 2012). This has led to significant improved performance of firms globally through competitive advantage in the global market place. The effects of supplier quality evaluation as a strategic tool has seen organizations achieve high quality levels, fast delivery and cost savings. However, there is still a challenge on customers due to the limited approach of suppliers to go reduce waste through adoption of lean practices. Possible solution to this problem could be adoption of just-in-time (JIT) model by suppliers to enable them monitor and check on buyer's inventory level. This is to reduce burden of holding excess stock and holding cost by the buyer (Kamenya, 2014). Effective incorporation of suppliers into the supply chain is a major factor for plants to maintain their competitiveness. Supply Management Orientation (SMO) on supplier's and buyer's helps improve performances of automotive firms (Masiko, 2013).

Japanese automotive industry incorporates supplier relationship practice using supplier development philosophy after the World War Two Moore (2010). Supplier relationship was conducted through lectures, seminars and training courses for Toyota Motor Corporation employees. Awareness on suppliers was made available to core supplier employees as early as 1950s. After creating supplier relationships, suppliers were then development in the European and North American automotive industries in the 1980s (Lategan, 2010). Sole purpose of these supplier developments was to improve supply chain performance of firms. Due to vast benefits, supplier relationship has been adopted by manufacturing firms in North American manufacturing firms like John Deere, Motorola, Harley-Davidson, Digital Equipment Corporation, Marks and Spencer (Nasra, 2014).

Europe being the a continent with many industrial firms spread across countries such as Germany, Switzerland and Austria, supplier relationship plays a critical role amongst assembly industries such automotive, machinery, construction and metal/fabricated metal industries compared to process and primary industries

(Masiko,2013). With consolidation of firms within industries, supplier relationships are becoming more critical in the future. Japanese, Honda and Nissan motor manufacturers have enjoyed supplier relationship as it enables them assemble vehicles according to customer needs.This has further deepened their scope due to the variety specifications enabled through supplier relationship (Meryem,2011).

1.1.2 Regional Perspective of Supplier Relationship Practices

In Tanzania, governance of supplier relationship management is bestowed on SRM office and supply chain function. Sole objective is to clearly define and create an effective governance structure with strategically identified suppliers. To achieve this, firms rely heavily on existing governance models. Well established governance structure has several stakeholders on board who include senior executive sponsors at both customer and supplier and committed relationship managers. The model ensures interconnection of personnel in engineering, procurement, operations, monitoring and evaluation with their supplier counterparts. Purchasing has revolutionized over the past years from a mere process to a strategic function and a key factor in achieving competitive advantage. This has made supplier relationship a critical success factor for firms seeking competitive advantage. It ensures operational, strategic planning and coordination of operations with suppliers.

Rwanda has experienced changes in supplier development recently from manufacturing sector subsidiaries of multi-national firms such as Rwanda building materials manufacturer Bamburi Cement Ltd (Lafarge) and East Africa Breweries Ltd (Diageo PLC) (Wachiuri, Waiganjo&Oballah, 2015). This has seen a significant increase in procurement costs for developers, manufacturers, traders and distributors from 50-80% percent of the total procurement cost. Malawi manufacturing sectors is also not exceptional. There has been adverse decline of procurement performance resulting to 0.2% percentage decline in GDP between 2009 and 2013 (World Bank, 2013). All these challenges are attributed to limited supplier relationship management between suppliers and suppliers.

In Nigeria, supplier relationship plays a critical supply chain role that every organization must adopt to improve their performance (Akenroye *et. al.*,2012). Nigeria has laws that resemble the Kenyan PPDA Act 2005 and procedure 2006. It serves as a guide that provides guidelines and procurement procedure for supplier relationship management in public procurement. It also enables organizations to ensure ethical, economic and efficient use of state resources ensuring that public procurement is carried out in a fair, transparent and non-discriminatory manner. It also ensures personnel handling tenders should observe utmost professionalism, technical qualifications and competence. This is to ensure that financial resources, equipment's and facilities. These laws therefore ensure supplier relationship is implemented and maintained effectively.

In Ghana, supplier relationship management determines how well an organization achieves its objectives. These objectives vary from shareholders wealth maximization, profit maximization, increased market share and customer satisfaction (Kamenya,2014). Initiatives taken by organizations including supplier relationships have an upper hand in ensuring enhanced organizational performance. Several studies undertaken in manufacturing sectors have established that supplier relationship management plays a critical role in improvement of both the buyer firm and supplier firm performances (Lategan,2010). Engaging suppliers in new product development, maintaining few identified number of suppliers and helping suppliers improve and maintain quality of their products are some of the common supplier relationship practices.

1.1.3 Kenyan Perspective of Supplier Relationship Practices

Supplier relationship management in Kenya traces back to 2000. Despite the numerous benefits that firms get on adoption of supplier relationship practices, surveys undertaken by scholars indicate that majority of organizations in Kenya are yet to adopt the practices (Wanjiru, 2013). Bold steps have been undertaken by private firms in manufacturing sector. These firms have established networks on how to work together with their respective suppliers. Main objective has been to achieve their goals and those of their suppliers. Also, to forecast on future customer demands, relationship loyalty, customer satisfaction and intentions. The entire situation has pointed out the existing research gap of supplier relationship practices on performance in Kenyan context (Mwikali&Kavale, 2012).

Attaining strategic partnership level through supplier relationship has been the ultimate reason for effective management of supply chain relationships. Higher service level and strategic relationships has always been the desire and expectations of majority of customers. Reliability, dependability and trust are factors considered in supplier relationships (Ochieng,2014). Although quality has been a major factor considered in relationships, firms have other significant factors like trust and conflict of interest that can either be a success or failure to the relationship (Mungai, 2014). Although relationship may experience changes, it is the responsibility of both parties to build trust and an understanding of what factors led to the development of the relationship based on their goals (Mburu, 2012). Actually, the nature of trust is very broad thus it would be logical to assume that the existence of an organization in relation to buyer supplier relationship.

1.1.4 Supplier Relationship at MTRH

Buyer-supplier relationship at MTRH has been the leading strategic factor towards success in form of give and take mode operation. This form ensures that both parties perform their duties effectively when and due. Buyers take into consideration many factors when creating relationships but most importantly trust and commitment. These factors ensure that MTRH maintain relationship with suppliers who meet their set standards. Supplier performance is also used as a key indicator or measure of success. Successful relationships tend to last longer with suppliers who have exemplary good performance than those who do not (Kemunto&Ngugi, 2014). Effective and significant cost reduction is another critical factor that determines supplier performance. On the contrary, few scholars have conducted studies that enable firms analyze suppliers they can create relationships with (Mburu, 2012). This is because supplier relationship is mutually beneficial and most importantly it enhances supplier's continuity and reduces dependence on others.

Supplier relationship management in MTRH is the responsibility of head of supply chain department. The department undertakes supplier selection and integration process. This process aims at identifying suppliers to create relationships with. Supplier relationship is a thorough exercise that involves evaluation of suppliers based on on-time delivery past records, quality and mix flexibility (Aseka, 2010). Modern supply chain has almost become wide and competitive in nature thus necessitating need for cutting-edge supply chain strategies. These strategies have proven to be effective in the management of supplier relationship management process. Consequently, organizations recently look at the management of relationships in the supply chain as a means of increasing competitive advantage. Ability of suppliers to provide significant technical knowhow enables firms improve their capacity.

1.2 Statement of the Problem

Procurement function ensures proper planning of procurement of goods and services in an effective and efficient manner. Despite the growing concerns that procurement is an important part of health care institutions, public hospitals still undergo challenges in managing their suppliers (Mburu, 2012). An effective procurement process ensures the availability of the right drugs, equipment, foodstuffs in the right quantities available at the right time for the right person at reasonable prices, and at recognizable standards of quality. For instance a case of KNH hospital in 2015 where patients were advised to proceed to the hospital pharmacy or with an apology by the healthcare provider that the prescribed drug was currently unavailable at the hospital pharmacy and that they had to buy them from a chemist. Ideally, procurement is an important part of management and supply and is an important procedure for all levels of health care institution. According to World Bank, supply chain performance has declined at an alarming rate resulting to a decrease in global GDP to up to 4.7% (WB, 2013). There has been drastic increase in the pressure on organizations to find new ways to create and deliver value to customers to improve on their supply chain performance (Magetoet. al., 2012). Supply chain performance is influenced by contingent factors that lie beyond the realm of strategy and structure. Poor Supply chain performance can reduce shareholder value by as much as 8 to 10 percent, or even worse in time-sensitive environments where early market introduction is critical to success. In the past, the leverage for organizations was their ability to change suppliers at any time and maintain no or minimal relationship with their suppliers (Mwikali&Kavale, 2012). This resulted in the customer keeping the multiple suppliers competing and a confrontation of the efficiency of others. However, this is not the case in public hospitals; these healthcare organizations are continually battling conflicting priorities (Wanjiru, 2013). This often occurs in the process of selecting suppliers, healthcare institutions end up losing them instead of maintaining for continued supply of goods and services. Few studies have been done regarding performance of procurement function of hospitals in Kenya. This study therefore seeks to investigate the influence of supplier relationship practices on performance of procurement function at Moi Teaching and Referral Hospital, Kenya.

1.3 Research Objectives

The study seeks to address the general and specific objectives as follows;

1.3.1 General Objective of the Study

The study sought to determine the influence of supplier relationship on performance of procurement function at Moi Teaching and Referral Hospital, Kenya.

1.3.2 Specific Objectives of the Study

The study was guided by the following study objectives;

- i. To establish the influence of supplier segmentation on performance of procurement function at Moi Teaching and Referral Hospital.
- ii. To examine the influence of supplier evaluation on performance of procurement function at Moi Teaching and Referral Hospital.
- iii. To assess the influence of supplier development on performance of procurement function at Moi Teaching and Referral Hospital.

1.4 Research Hypotheses

The study was guided by the following Hypotheses;

H₀₁: There is no significant relationship between supplier segmentation and performance of procurement function at Moi Teaching and Referral Hospital .

H₀₂: There is no significant relationship between supplier evaluation and performance of procurement function at Moi Teaching and Referral Hospital .

H₀₃: There is no significant relationship between supplier development and performance of procurement function at Moi Teaching and Referral Hospital .

1.5 Significance of the Study

The findings from this study will provide an insight into the importance of supplier relationship strategies on procurement performance in Moi Teaching and Referral Hospital . Other organizations will have a better understanding of supplier relationship strategies and its importance on procurement performance. The study may also be of significance in the following ways to the following groups. Government will benefit from this study when setting up laws and regulations governing supplier relationships. Policy makers can use the findings and recommendations to optimize their procurement performance through supplier relationship strategies. They will also realize their contribution in the successful implementation of the supplier relationship strategies and more importantly learn how to ensure that they work towards achieving the organizational goals. Other researchers and institutions may follow the areas recommended for further research as a means of increasing body knowledge on supplier relationship strategies and procurement performance.

1.6 Scope of the Study

The study was conducted at Moi Teaching and Referral Hospital in Uasin Gishu County. The choice for MTRH is because its operational performance is dependent of the goods and services supplied by the supplier hence, they have huge procurement operations. Also, it is because of its proximity; hence help reduce financial constraints in terms of transport. It was limited to supplier relationship practices which are; supplier segmentation, supplier evaluation and supplier development. The study used grey system theory, lean supplier competence model and fuzzy set theory. The study adopted descriptive research design with a target on procurement employees and senior management employees of procurement function at Moi Teaching and Referral Hospital . Questionnaires were used in collecting data. The study was conducted between March and October 2019.

1.7 Limitations of the Study

The main challenge for the study was lack of willingness by respondents in providing the responses to the questionnaires. This was attributed to fear of disclosing confidential information and job security. It can be mitigated through assurance of non-disclosure of identity and use of the findings for academic purpose only. Some respondents faced difficulty in answering questions due to difficulty in understanding the term lean. This was addressed by individual assistance of the respondents to correctly answer the questions.

II. Literature Review

2.1 Introduction

This chapter explains theoretical review/conceptual framework. It also explains empirical literature which is based on the study objectives. The chapter further describes the research gaps of the study.

2.2 Theoretical Review

The study was guided by grey system theory, lean supplier competence model and fuzzy set theory.

2.2.1 Grey System Theory for Supplier Segmentation

Grey system, originally developed by Deng (2002) on the basis of grey sets, is an important methodology for solving problems which involve uncertainties and aims at handling systems with unknown or incomplete information. Here, on the grounds of grey relations “grey” means poor, incomplete or uncertain information. Thus, the systems which lack information are referred to as Grey Systems (Deng, 2006). A grey system is a system which contains both known and uncertain unknowns (Wang & Yih, 2012). According to the theory, the information is classified into three categories. This classification depends on the degree of information obtained. It is said to be white when it is completely certain; black when it is totally unknown and grey when it is insufficient (Yang et. al., 2014). The grey theory is a new and different approach which handles the uncertainty of a system.

Supplier segmentation at time can be challenging and it can be equated as a grey system. The importance of the attributes and the ratings of attributes can be expressed in grey numbers which gives the

flexibility to express decisions more easily. The theory of Grey System considers the following factors in deciding on the best supplier; existence of key factors important to the buyer, the numbers of factors are limited and countable and can be directly attributed to potential suppliers, in dependability of factors and factor expandability.

The theory Grey System applies the principle of series comparability to generate a grey relation. An evaluation matrix may be developed to facilitate this process. Suppliers are segmented by choosing a goal and weighting the values of all evaluation factors based on the characteristics of materials to be sourced based on demand patterns (Wang & Yih, 2012). In a supplier segmentation environment, this theory can be applied in evaluation of critical performance areas by the procuring entities. This theory is important to this study since the criteria of segmenting the performance of the supplier is very critical because if the performance of the supplier is good then such suppliers are chosen. This theory gives criteria that can be used in segmenting suppliers. Thus MTRH procurement function can use this system when segmenting their suppliers. The theory fails to give solutions to uncertainties that may arise when segmenting suppliers.

2.2.2 The Lean Supplier Competence Model for Supplier Evaluation

The Lean Supplier Competence Model was developed by Marks (2007). The model evaluates the supplier against the five categories that supports the Lean techniques of Kaizen continuous improvement. The Lean Supplier Competency Model explains how organizations interact in the five areas of competency where there is varying degrees of performance ultimately to achieve lean organizational operations. Each category is broken down into specific "behaviors" or ways the company and the supplier interact with each other. These behaviors are rated from a "1" as "Less Lean" to a rating of a "5" as "More Lean."

The five categories and 'specific behaviors' of the supplier to be evaluated are quality (Part specification, reliability and consistency, Preventative and Predictive Maintenance, Corrective Action Process) ; Delivery (Lead Times, Delivery Performance, Location of Supplier) ; Financials (Buyer's Cost of Quality, Supplier's Cost of Quality, Supplier's Infrastructure and stability, Buyer's Order Quantity Requirements) ; Operational Excellence (Vision and Mission, benchmark, Supplier's Company Culture, Supplier's Commitment to Waste Elimination) ; General Performance Measures (Marks, 2007). This measurement allows a company to determine placement of business based on common values and common strategic goals. Using this model, as the business philosophies of the company and the supply base draw together to eliminate waste, the natural result is a reduction of cost to the supply chain and to the ultimate customer (Xu, 2007).

The theory is relevant to this study as it hinges on supplier evaluation criteria and factors to consider. The theory indicates the key factors to be evaluated in a supplier. This theory is relevant in supplier evaluation since it advocates for working together. It is particularly important for an organization that is intending to foster lasting supplier relationship and those intending to build strategic partnership with suppliers. The model fails to highlight measures that can be used to mitigate challenges used during supplier evaluation.

2.3.3 Fuzzy Set Theory for Supplier Development

In 1965, Zadeh introduced fuzzy set theory to cope with the imprecision and uncertainty which is inherent to human judgment in decision making processes using linguistic terms and degrees of membership. Supplier development is usually multi-criteria decision problem which, in actual business contexts, may have to be solved in the absence of precise information. In order to do this, the decision process of purchasing could be modeled and structured in a realistic way. A number of authors suggest using a fuzzy set theory (FST) to model uncertainty and imprecision in supplier development. In short, FST offers a mathematically precise way of modeling vague preferences, for example setting weights of performance scores on criteria. Simply stated, FST makes it possible to mathematically describe statements for instance criterion X having a weight of around 0.8. FST can be combined with other techniques to improve the quality of the final tools (Semra, 2011).

In the real life, many decision problems have unclear and indefinite data; thus, models based on such information fail short to represent problems exactly and accurately. Therefore, a decision process must enable building models on unclear and indefinite information (Peter & Kevin, 2009). Zadeh formalized fuzzy sets theory based on the idea that the key elements of human thinking were not numerical but linguistic variables to handle problems with imprecise and incomplete data (Mao, 2009). Fuzzy sets theory builds a model of uncertainty in natural language related to human perceptions and subjective judgments, helps to interpret qualitative parameters, and expresses the uncertainty of language with appropriate mathematical tools (Obrien & Ghodssypour, 2008). Fuzzy sets are the sets whose elements have degrees of membership.

Supplier development is among the fastest growing areas of management. Most organizations are continuously seeking the most appropriate supplier to improve economic efficiency. Phenomenon of globalization and rapid development of logistics, at the same time, is in details presented in (Tully, 2011) thus this theory is relevant to this study as it will help in addressing the difficult multi-criteria decision making

problem that requires focusing on a number of factors in supplier development. Critique of this theory is that it only highlights the tedious supplier selection process but fails to give leeway to mitigate on those challenges.

2.3 Empirical Review

This section reviews literature in relation to the study objectives which includes supplier segmentation, supplier evaluation and supplier development,

2.3.1 Supplier Segmentation and Performance of the Procurement Function

Wagner (2016) conducted a study on supplier segmentation practices in state corporations of Britain. The study aimed at effect of supplier segmentation on performance of procurement. The study used structured questionnaires. Descriptive was employed by the study. The study used purposive sampling technique in determining the sample size. Descriptive and Inferential statistics was used in the study. The study noted that it is the important part of supply relationship management which incorporates differentiating suppliers, preparing supplier segmentation teams, reviewing supplier. The findings of the study show that material/service supplied suppliers can be classified into one of four quadrants: commodity, strategic, standard, or key. The study relied on the state corporations which calls for a study.

Masiko (2013) did a study on strategic supplier segmentation practices and procurement performance among commercial banks in Kenya. The study was guided by institutional, transaction cost theory, and Systems theory was used by the study. The study also developed a conceptual framework that links the two theories under the study. Structured questionnaire containing open and closed ended questions was used by the study. Also, the study relied on the interview schedule. The study used explanatory research design and purposive sampling technique. The study noted that argues that criteria should be selected so that segmentation determines the nature of value provided by the suppliers. The study concentrated majorly on one sector of the economy. Hence calls for further research on other sectors.

Tyndal *et. al.*, (2016) conducted a study on effect of supplier segmentation practices on service delivery of supply chains. The study used primary sources of data collection. The study concentrated on collaborative suppliers. Descriptive and inferential statistics were used to analyze the findings. The study tested assumption of multiple regression analysis. The study findings established that collaborative suppliers are exceedingly noticeable to the firm and frequently used. The study found out that transactional suppliers are used periodically by organizations for basic supplies. Study recommended that organizations should do risk analysis in supplier segmentation in order to improve organizational performance. Researchers should have used secondary sources.

Mungai (2014) researched on influence of supplier segmentation on procurement Performance in the real estate industry in Kenya: A Case Study of International House Ltd. The study aimed at determining the effect of transitional suppliers on the organizational performance. Interview schedule was used to collect the responses from the field. Descriptive statistics were used in the study to analyze the results from the field. The study found out that supplier plays a crucial role in strengthening the relationships with the company. The researcher recommended that organizations should put effects in development of the supplier performance and establish a strong tie. This relationship is passive and usually results in various associations being established across the organization. The study used transitional suppliers as the major factor in establishing the buyer supplier collaboration.

Moore (2010) on study on the impact of supplier segmentation on Army base. The researcher found out that partner suppliers influence the firm's sustainable competitiveness and commitment in the long-term. That study utilized transactional theory and human capital theory. Questionnaires containing open and close ended questions were used in the study. The study used purposive sampling technique and descriptive research design. To analyse the data effectively, the researchers used inferential statistics and the descriptive statistics. Data results were presented by use of tables for easy interpretations. The study recommended that organization should put up proper mechanisms of developing their suppliers in order to build a long-term relationship with suppliers. Data relied on one source, hence need for other methods of data presentations such as pie charts and graphs should have been employed.

2.3.2 Supplier Evaluation and Performance of the Procurement Function

Rodeghier (2017) conducted a study in England titled should supplier evaluations be a strategic global supply management process. The study used structured questionnaires continuous open and closed ended questions. Descriptive research design was used in the study. Data was analyzed by use of descriptive and inferential statistics. The study findings established that guidelines, procurement procedure and supplier evaluation is vital for public procurement entities to ensure judicious, economic and efficient use of state resources. It also ensures that public procurement is carried out in affair, transparent and non-discriminatory manner. In spite of all these, public institutions such as Universities have never realized the objective of supplier evaluation. There is need to conducted on other sectors. The study was limited in scope to England.

Sreejith and Vinaya (2017) did a study on influence of supplier evaluation on procurement performance: An empirical investigation on the construction sector in Vietnam. An explanatory research design was used for the study. The study used both primary and secondary data. Primary data was collected through questionnaires. Secondary data was collected by use of desk search techniques from reports. The study established that quality commitment is determining factor for qualified supplier and is a key element and a good resource to cut production and material costs in order to survive or sustain competitive position in respective markets, hence development of an effective and rational supplier evaluation and selection is desirable. The study was limited to firms in Vietnam only.

Dobos(2013) did a study on supplier selection and evaluation decision considering environmental aspects in private organizations. Data was collected by use of questionnaires and interview schedules. The method of analysis employed in the study was survey design. Data analysis was done using simple percentages, tables and correlations coefficient. The study established that supplier performance measurement, supplier audits, supplier development and supplier integration are the most used supplier quality management practices. The study also established that from supplier quality management, an organization may enjoy among other benefits reduced lead times, increased responsiveness to customers', orders and enquiries, customer loyalty. The study further recommended that suppliers should maintain reliable records to avoid the problem of poor visibility and traceability. The study did not indicate the sampling method and the sample size used in the study.

Jens (2014) conducted a study on strategic supplier evaluation considering environmental aspects. Department of Management and Engineering Logistics Management, Linkoping University. A focus of the study was on employees working in different departments at the Company. The researcher used the questionnaire in data collection. Descriptive research design was adopted which was appropriate because it involved collecting data in order to answer pertinent questions concerning the status of subjects under study. The sample size of 80 respondents was selected using stratified sampling technique. Data collected was analyzed using SPSS version 23. Analysis of variance (ANOVA), correlation and regression analysis were done. The study shortcoming is that it did not mention any theory guided the study.

2.3.3 Supplier Development and Performance of the Procurement Function

Wagner (2016) studied supplier development practices an exploratory study. The researcher on definition of terms, defines the supplier developments as substantial effort by an organization to improve a supplier's performance. Agency and contingency theory were used in the study. Sample was selected using purposive sampling technique. Data for the study were collected using primary sources. Data was majorly presented using tables, graphs, charts. The researcher noted that Purchasers can make use of a wide range of supplier development practices to improve a supplier's performance and/or capabilities. The study found out that supplier development may be composed of such activities from a buying firm as goal setting, supplier evaluation, and supplier technical support. The researchers should have utilized secondary data to improve the results.

Krause (2012) conducted a study on supplier development practices product and service based industry comparisons. Data for the study was collected using primary and secondary sources. Social economic theory was utilized in the study. The study used the questionnaires containing opened and closed ended questions. The study used descriptive statistics in data analysis. The study establishes that supplier should lead to improvement in the total added value from the supplier in question in terms of quality of product or service offered, business processes and performance, improvements in lead times and delivery to overall performance of the buying firm. The research noted that supplier development is normally undertaken with existing. The study used supplier development only a major tool of improving the supplier performance.

Humphreys (2013) conducted a study on the impact of supplier development on buyer supplier performance. The researcher used secondary and primary data. Systems and social economic theory was used in the study. The study majorly used the questionnaires. Descriptive research design was used in the study. To establish the desired sample size, the study used stratified sampling technique. The study noted that there is no single approach to supplier development but it is generally acceptable that it can be undertaken at three levels. The study found out that the profit generating capacity and individual competitiveness of a firm depends on its capability to handle the supply side thus positioning the relationship between the buyers. The study relied on only the questionnaire in ensuring collection of data from the field.

Ochieng (2014) conducted a study on the role of supplier development in effectiveness of procurement function. The case of Equity Bank limited. The objective of the study was to determine roles of supplier development on effectiveness of procurement function. The researcher used primary sources for data collection. Also, the study used interview schedules. The study used descriptive statistics in analyzing the data. The data was presented by use of the graphs and tables. The study found out that supplier development projects which are undertaken must be in support of the purchasing and supply management strategy which, in turn, supports the organizational strategy. The researcher argued that a fundamental pre-requisite to supplier development and

indeed the development of any purchasing and supply management strategy. The critique of the study is that it only descriptive statistics.

Ling and Ling (2012) did a study on the effect of supplier practice on the public healthcare organizational performance. The study objective was to find the influence of supplier buyer relationships on organizational performance. The study also used contingency theory and stakeholder theory. The study developed conceptual framework the linked that variables under the study. The study used primary sources for data collection. The questionnaire contained open and closed ended questions. The study also used inferential and descriptive statistics in analyzing the data. Although academia elaborates on a number of constructs in the context of supplier development, an immense majority of literature focuses only at a few of them. The study limited itself to few theoretical perspectives in conceptualizing the variables under that study.

2.4 Conceptual Framework

The conceptual framework describes the link between independent and dependent variables in the study (Wanjiru, 2013). The main objective of the conceptual framework in the study is to show and improve the understanding of supplier relationship concept by providing a more complete, clear and updated set of concepts such as the dependent and independent variables linkages. To achieve this understanding, supplier relationship practices and performance of the procurement has been conceptualized in the Figure 2.1. Procurement performance was the independent variable since its success depends on individual outcomes of supplier relationship practices which were independent variables. The study therefore was guided by the following conceptual framework.

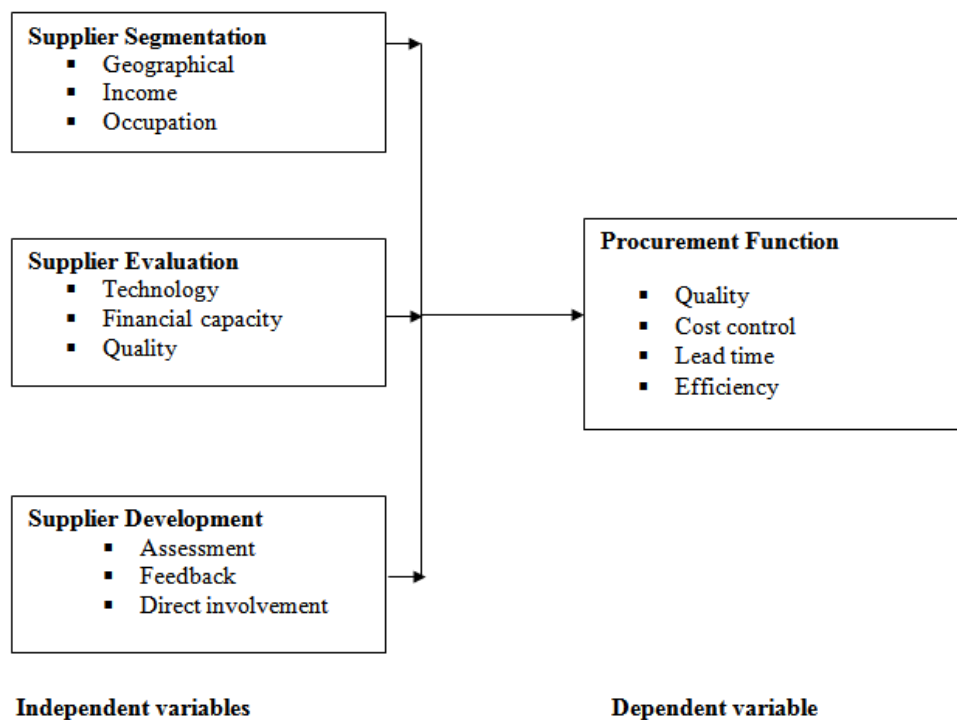


Figure 2.1 Conceptual Framework

2.5 Summary of the Reviewed Literature

The study make summary in relation to the theories underpinned in the study and the empirical review on the past studies. To ensure continued success, management must actively monitor progress and revise the strategies if performance is warranted, critical strategies such as segmentation, evaluation, and supplier development is paramount. Grey System applies the principle of series comparability to generate a grey relation. Wagner (2016) observed that segmentation of supplier is easily done using four quadrants of commodity, strategic, standard or key. These quadrants act as grey relation in the grey system theory. Supplier segmentation enables firms to easily notice suppliers and used them whenever they require (Tyndall *et. al.*, 2016). Grey system theory therefore helps in easy identification of suppliers through segmentation.

Lean supplier competence model tries to address the need for evaluating suppliers based on their technical and financial capabilities. The model informs supplier evaluation strategies in the organization. In addition, the institution provides the best means of using the strategies to accomplish the institutional objectives.

Rodeghier (2017) attributes supplier evaluation as a process that ensures judicious, economic and efficient use of state resources. This calls for a fair, transparent and non-discriminatory supplier evaluation process. The model also provides a five point quality supplier evaluation guidelines of part specification, reliability and consistency, preventative and predictive maintenance and corrective action process. Supplier evaluation in terms of quality is a determining factor for qualified suppliers. This is because it ensures reduced lead time and responsiveness among others (Dobos, 2013).

Fuzzy set theory is used to model uncertainty and imprecision in supplier development. Fuzzy sets theory builds a model of uncertainty in natural language related to human perceptions and subjective judgments, helps to interpret qualitative parameters, and expresses the uncertainty of language. Humphreys (2013) noted that supplier development is a challenging activity that has no single approach. Three levels of supplier profitability, competitiveness and quality commitment. Communication and collaboration ensures successful supplier development by procurement functions (Ochieng,2014). Krause (2012) highlights benefits of supplier development include quality of products and services and improvement in lead time and delivery time.

2.6 Research Gap

Globally and locally, studies have been done on Supplier Relationship Management and procurement performance. Vance (2013) explained how supplier management affect the firm's effectiveness and efficiency. Levi(2011) argued that Supplier relationship management promotes competitive advantage by working closely with a restricted number of vendors. Mburu (2012) on their study on SCM practices found out that collaboration and lean practices resulted into positive and substantial impact on procurement performance. Moore (2010) found that by exchanging supplier information with other hospitals, the procuring department made a positive move to establish strategic aspects of SRM. Ochieng(2014) reviewed key relationship models in supplier management and concluded that trust, communication, commitment, cooperation and mutual goals are key ingredients in successful relationship, which in turn affect performance positively. From this gap, the current study seeks to establish the influence of supplier relationship practices on procurement function at MTRH.

III. Research Methodology

3.1 Introduction

This chapter discusses the research design, target population, sampling procedure and sample size, research instruments, data collection methods, data processing and analysis.

3.2 Research Design

A research design is a framework or blueprint for conducting a research. It details the procedures necessary for obtaining the information needed to structure or solve the research problems (Wire, 2015). The study used descriptive research design. Descriptive research design is ideal when determining the degree to which variables are associated and making predictions regarding the occurrence of social or physical (Creswell, 2013). The descriptive approach was appropriate for this study in validating study findings, formulation of knowledge and providing solutions to research problem. This research design focuses on individuals, groups and communities in whom it involves gathering information through interviews or administering questionnaires to a group of selected target population. According to Kothari and Garg (2014), research design is a plan outlining collection, measurement and analysis that effectively and efficiently enables research operations to be done with ease.

3.3 Target Population

A population consists of all the individuals that are of interest to a study (Andersen & Walter,2013). Target population is the entire group of people, things or objects that a researcher is interested in (Brannen, 2008). Target population consisted of the staff of the Moi Teaching and Referral Hospital . The study focused mainly on the senior management staff in the procurement, warehouse staff and the procurement officers in the hospital. Choice of focus was based on the knowledge that the respondents had regarding procurement function performance. Accessible population for the study comprised of senior management heads, procurement officers and warehouse staff. The accessible population for the study was 120 staff. These include senior management officers, procurement officers and warehouse staff.

Table 3.1 Accessible Population

Respondents	Accessible population
Senior management officers	18
Procurement officers	40
Warehouse staff	62
Total	120

3.4 Sampling Frame

The sampling frame for this study is national referral hospitals in Kenya. This is where the actual study area was picked from as shown in Appendix II.

3.5 Sample Size and Sampling Technique

The study randomly sampled senior management heads of procurement department, procurement officers and warehouse staff from Moi Teaching and Referral Hospital. Simple random sampling technique was used to select sample size. This technique ensures an aspect of biasness is avoided. The study used Taro Yamane formula to calculate the sample size.

$$n = \frac{N}{(1 + Ne^2)} \dots\dots\dots \text{Equation 3.1}$$

Where; n represent the sample size,
 N represents the total accessible population and
 e represents the degrees of freedom.
 Hence the sample size for the study;

$$n = \frac{120}{1 + 120(0.05^2)} \dots\dots\dots \text{Equation 3.2}$$

= 93
 Respondents

Table 3.2 Sample Size

Respondents	Accessible Population	Sample Size
Senior management officers	18	14
Procurement officers	40	31
Warehouse staff	62	48
Total	120	93

3.6 Research Instrument

The researcher used questionnaire in collecting data from the respondents. The questionnaire was self-administered to the various senior management staff, procurement officer and warehouse staff. Self-administration of the questionnaires was to ensure maximum response rate. Kothari (2008) defines a questionnaire as a tool that consists of a number of questions printed or typed in a definite order on a form or set of forms. The researcher will construct close-ended open-ended questionnaires, which was administered to the target.

3.7 Pre-Testing of Research Instrument

Piloting assists the researcher in testing the reliability of the instrument. Kisii Teaching & Referral Hospital was used for piloting. Choice of pilot area to Kisii Teaching & Referral Hospital is because the hospital offers same quality services as Moi teaching and referral and it provides quality services to residence of Kisii region and its environs like south rift. The reliability of the items was based on estimates of the variability among the responses to the items. Validity and reliability of the research instrument was determined using Cronbach coefficient. This was to determine the accuracy and stability of the research instrument.

3.7.1 Validity of the Research Instrument

Face and content validity of the questionnaire was tested whereby face validity is in relation to the misunderstanding or misinterpretation of the questions in the questionnaire. This was checked by employing the pre-testing method. Content validity on the other hand refers to the capacity of the instrument to provide adequate coverage of the topic. Adequate preparation of the instruments under the guidance of the experts and pre-testing of open-ended questions will help in establishing content. The questionnaire was assessed by the supervisor in order to make sure the information in the instrument is valid.

3.7.2 Reliability of the Research Instrument

The reliability of data collection instruments was determined from a pilot study where the researcher administered the research instruments to the respondents not included in the sample. Retest method was used to obtain two scores for the pilot test data. The pilot study used Cronbach’s Alpha-Coefficient:

$$\alpha = \frac{n}{n-1} \left[\frac{1 - \sum V_i}{V_{test}} \right] \dots\dots\dots \text{Equation 3.3}$$

Where : α reliability
 n represents number of questions in questionnaire
 V_i represents variability of each of question score
 V_{test} represents variability of each of overall questions' score

3.8 Data Collection Procedure

The researcher acquired authority from Jomo Kenyatta University of Agriculture and Technology and from MTRH to conduct the research. Visit to the research site was made prior to collection of data. The researcher distributed the questionnaires to the respondents personally. Respondents were given time to fill and return them immediately. This was to ensure maximum response rate and ensure efficiency in collection and processing of the data. Confidentiality was assured by the researcher taking responsibility to protect all data gathered within the scope of the study. Questionnaires were then collected, coded and analyzed for data presentation.

3.9 Data Processing and Analysis

Data was processed through coding and using descriptive statistics such as percentages, frequencies and means. Descriptive statistics was used in examining the characteristics of the population. Variable aggregation for different variables was undertaken in facilitation of further statistical analysis. The researcher applied "Collapsing Response" method in analyzing responses from a Likert scale measurement. This is done by adding the 'strongly agree' responses with the 'agree' responses and also adding the 'disagree' responses with 'strongly disagree' (Gwavuya, 2011). The purpose of descriptive statistics was to enable the researcher to meaningfully describe the findings.

Inferential statistics was done using correlation analysis, regression analysis and Analysis of Variance (ANOVA). The study used SPSS (Statistical Package for Social Sciences) software to aid the analysis. The study used Shapiro-Wilk test to test normality and Durbin Watson test to test the autocorrelation of the variables. The correlation analysis was carried out between the variables of the study using Pearson correlation coefficient.

This was to test whether there existed interdependency between independent variables. Also to examine if there exist a significant relationship between the independent variables. Multiple linear regression model was used in testing the significance and influence of the predictor variables on the dependent variable. Multiple regression attempts to determine whether a group of independent variables together predict a given dependent variable (Mugenda & Mugenda, 2008). The regression equation assumed the following form:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \epsilon \dots\dots\dots \text{Equation 3.4}$$

Where: Y represents Procurement Function
 β_0 represents the constant
 $\beta_1, \beta_2, \& \beta_3$ represent regression coefficients of independent variables
 X_1 represents supplier segmentation
 X_2 represents supplier evaluation
 X_3 represents supplier development
 ϵ represents error term

3.10 Assumptions of Regression Model

The study will test the assumptions of the regression model. Normality, linearity, homoscedasticity, multicollinearity and independence of errors assumption were tested by the study. Test for normality explain that normal data is an important underlying assumption in parametric statistical analysis (Tabachnick & Fidell, 2013). As such, an evaluation of the normality of data is essential for many statistical tests in a research study (Saunders *et. al.*, (2016). Test for multicollinearity the rationale for testing for multicollinearity assumptions in regression is because multiple linear regressions are sensitive to outlier effects. Thus, in order to test the linear relationship between the independent and dependent variables, variance inflation factors (VIF) was used. That is, as long as the VIF values were below 10, then the relationship was deemed linear (Vatche *et. al.*, 2016) Tolerance should be between 0 -1 (Williams, 2015).

Homoscedasticity occurs when the variance in scores on one variable is somewhat like all the values of the other variables. The guidance for rejecting the null hypothesis was based on $p < .05$, implying that data was homoscedastic in distribution. Multiple regression assumes that the residuals are normally distributed normality assumption. Kolmogorov-Smirnov statistics was used to test whether the study variables were normally

distributed. Kolmogorov-Smirnov test was done to test for normality of variables whereby if P-value was greater or equal to 0.05 the data was normal (Tabachnick&Fidell, 2013) and if p value is less than or equal to 0.05 then the distribution was not normally distributed and was rejected on a significance level of 5 percent. A P value > 0.05 implies that the variable is sufficiently normally distributed on a significance level of 5% and was fit for further statistical analysis and it resulted in inflated statistics and underestimated standard errors (Wire, 2015).

Pearson Correlation coefficient was used to test for linearity. The Pearson correlation coefficient, *r*, can take on values between -1 and 1. Under the test of autocorrelation, presence of serial correlation indicates that the variables in the model violate the assumptions of the regression (Tabachnick&Fidell, 2001). Durbin-Watson statistic was used to test the assumption that the residuals were independent (or uncorrelated). If the value is below 1 or above 3 is a cause for concern and renders analysis invalid because the variables are correlated (Wire, 2015).

IV. Research Findings And Discussions

4.1 Introduction

This chapter presents summary of data analysis, interpretation and presentation. The analyzed data was presented using descriptive statistics tables, inferential statistics and multiple linear regression analysis.

4.2 Response Rate

The study targeted 120 respondents. 82 questionnaires were successfully filled and returned representing a response rate of 68.33%. The remaining 31.67% is due to official duties of some staff in their work place at the time of data collection. Over 70% response rate is excellent for data analysis (Creswell, 2013).Babbie (2011) also asserted that return rates of 50% are acceptable to analyze and publish, 60% is good and 70% is very good.

Table 4.1 Response Rate

Questionnaires	Number
Successfully filled and returned	82
Unsuccessfully filled and not returned	38
Total number of questionnaires issued	120

4.3 Pilot Test Results

Internal consistency of the research instrument was conducted by the study. Table 4.2 shows the analysis results.

Table 4.2 Reliability Results of Research Questionnaire

Variables	Test Items	Cronbach's Alpha Coefficient
Supplier Segmentation	3	0.813
Supplier evaluation	3	0.818
Supplier Development	3	0.850
Procurement Function Performance	4	0.816
Average		0.824

From the study reliability results in table 4.2, supplier segmentation had a cronbach alpha of 0.813, supplier evaluation had a cronbach alpha of 0.779, and supplier development had a cronbach alpha of 0.850 while performance of procurement function at Moi Teaching and Referral Hospital had a cronbach alpha of 0.816. On average, the independent variables had a cronbach alpha of 0.824. Cronbach alpha 0.7 threshold was met by the variables. This implies that all the independent variables were reliable for conducting the study because they had cronbach alpha of more than 0.7.

4.4 Background Information of Respondents

Respondents were asked to provide confidential demographic information regarding gender, level of education, work experience and age group.

4.4.1 Distribution of Respondents by their Gender

Respondents were asked to tick appropriately on their gender. Table 4.3 shows the distribution of gender

Table 4.3 Distribution of Respondents by their Gender

Gender	Frequency	Percentage
Male	45	54.9
Female	37	45.1
Total	82	100.0

From the study results, 45(54.9%) were male respondents while 37(45.1) were female respondents. This implies that majority of staff working in procurement function at Moi Teaching and Referral Hospital are male. Work experience, skills and technical know is more displayed by male staff than female staff. Technical

jobs are easily done by male employees therefore makes MTRH prefer more male than female. Gender disparities in work places are indicators of job preferences for some jobs by gender groups (Ratemo, 2011).

4.4.2 Distribution of Respondents by the Level of Education

Level of education that the respondents were given to choose from include masters, degree, diploma and certificate as shown in Table 4.4.

Table 4.4 Distribution of Respondents by their Level of Education

Level of Education	Frequency	Percentage
Certificate	8	9.8
Diploma level	32	39.0
Degree level	38	46.3
Masters level	4	4.9
Total	82	100.0

Majority of respondents in the procurement function were degree holders 38(46.3%) followed closely by diploma 32(39.0%), 8(9.8%) of the respondents were certificate holders while 4(4.9%) were masters holders. Level of education affects productivity of employees on how they make strategic decisions (Weber, 2008). Employees with higher level of education are therefore preferred and give more priority. Certificate level had the lowest level because of their limited skills in procurement. This implies that Moi Teaching and Referral Hospital procurement functions employ skilled staff to improve their performance. More qualified staff with masters are employed to provide strategic decisions needed by the management.

4.4.3 Distribution of Respondents by Age Group

Respondents were asked to give their age groups between 26 years and 45 years each bracket with a span of 5 years. Table 4.5 shows the distribution by their age groups.

Table 4.5 Distribution of Respondents by their Age Group

Age Group	Frequency	Percentage
26-30 years	11	13.4
31-35 years	39	47.6
36-40 years	23	28.0
41-45 years	9	11.0
Total	82	100.0

Age group of 31-35 years had the highest number of respondents 39(47.6%), 23 (28.0%) of the respondents fell in the age group of 36-40 followed by 11 (13.4%) in the age group of 26-30 while only 9(11.0%) fell in the highest age group of 41-45. Productivity in an organization can be enhanced using younger generation (Kamenya, 2014). Although the organization employees over 40 years, this is to incorporate their experience and skills to the organization. Generally, most employees in MTRH are below 35 years. This implies majority of staff in MTRH are aged between 31-35 years. Productivity of employees is also high at the age of between 30 and 40 years. This also implies that the procurement function employs energetic and young youths to improve their performance.

4.4.4 Distribution of the Respondents by their Work Experience

Study respondents were asked to provide the duration they have worked in the procurement function unit. The results were provided as shown in Table 4.6.

Table 4.6 Distribution of the Respondents by their Work Experience

Duration	Frequency	Percentage
Less than 1 years	11	13.4
2-5 years	27	32.9
5-10 years	36	43.9
11 years & Above	8	9.8
Total	82	100.0

From the study findings majority of the respondents have stayed in the procurement function for a span of 5-10 years 36(43.9%) followed by those who have stayed for a span of 2-5 years 27(32.9%) , 11(13.4%) have worked for less than 1 year while only 8(9.8%) have worked for over 11 years. Limited work experience is because of the fresh graduates with skills who have just been employed. Matooket, *al.*, (2009) noted that employees with average experience are more productive than those who have stayed in the organization for a longer period. Employees with more experience of more than 10 years provide the required experience to

MTRH. This study finding implies that majority of respondents at MTRH had an experience of average between 2 and 10 years.

4.5 Descriptive Findings and Discussions

Descriptive statistics was collected on the independent variables of supplier segmentation, supplier evaluation, supplier development and the independent variable of procurement function performance. Respondents gave their responses in a scale of 1-5.

4.5.1 Supplier Segmentation Findings

The first objective of the study sought to establish the influence of supplier segmentation on performance of MTRH procurement function. Table 4.7 shows the supply chain collaboration results.

Table 4.7 Descriptive Statistics for Supplier Segmentation

Statements		SA	A	N	D	SD	M	Max	Min	Std. D
1. The organization accessible suppliers.	F	38	37	4	0	3	4.30	5.00	2.00	0.87
	%	46.3	45.1	4.9	0.0	3.7				
2. Financial capacity is used to identify Potential suppliers.	F	36	40	2	1	3	4.28	5.00	2.00	0.88
	%	43.9	48.8	2.4	1.2	3.7				
3. Area of specialization is used in identifying suppliers.	F	23	48	8	0	3	4.07	5.00	3.00	0.84
	%	28.0	58.5	9.8	0	3.7				
Valid N		82								

Study findings revealed that majority of the respondents 75(91.4%) agree that the organization has accessible suppliers while 3(3.7%) disagreed(M=4.30, Std D=0.87). On whether the organization uses financial capacity to identify potential suppliers, majority of the respondents agreed 76(92.7%) while 4(4.9%) disagreed (M=4.28, Std D=0.88). Lastly, respondents were asked whether the organization uses area of specialization in identifying potential suppliers, majority of the respondents 71(86.5%) while 3(3.7%) disagreed (M=4.07, Std D=0.843). Min values ranging from 2.00 to 3.00 while the maximum is constant at 5.00. Findings of this study therefore confirm that supplier segmentation influences performance of MTRH procurement function. These findings concur with findings of Tyndall *et. al.*, (2016) who noted that supplier segmentation affects service delivery thus affecting performance of a procurement unit. This implies supplier segmentation plays a critical role in improving procurement function performance.

4.5.2 Supplier Development Findings

The second objective of the study sought to establish the influence of supplier evaluation on performance of MTRH procurement function. Table 4.8 shows supplier evaluation results.

Table 4.8 Descriptive Statistics for Supplier Evaluation Results

Statements		SA	A	N	D	SD	M	Max	Min	Std. D
4. Technology adoption is used in evaluating the suppliers.	F	13	64	1	2	2	4.02	5.00	1.00	0.70
	%	15.9	78.0	1.2	2.4	2.4				
5. Suppliers are financially stable	F	30	42	5	3	2	4.16	5.00	2.00	0.88
	%	36.6	51.2	6.1	3.7	2.4				
6. Organization ensures quality goods from suppliers.	F	22	54	2	2	2	4.12	5.00	2.00	0.78
	%	26.8	65.9	2.4	2.4	2.4				
Valid N		82								

From the study findings, majority of the respondents agreed 77(93.9) while 4(4.8) regarding the organization using technology when evaluating their suppliers (M=4.02 Std D=0.70). When asked whether suppliers were financially stable, respondents agreed 72(87.8%) while 5(6.1%) disagreed (M=4.16, Std D=0.88). Majority also agreed 76(92.7%) while 4(4.8%) disagreed regarding MTRH ensuring quality of goods from suppliers (M=4.12, Std D=0.78). Min values are 1.00 and 2.00 while the maximum value is constant at 5.00. These findings concur with findings of Sreejith and Vinaya(2017) who recommended that suppliers should be evaluated based on quality commitment. This implies that supplier evaluation is a crucial for improving performance.

4.5.3 Supplier Development Findings

The researcher sought to determine the effect of supplier development strategy on procurement performance. Table 4.9 shows the supplier development results.

Table 4.9 Descriptive Statistics for Supplier Development Results.

Statements		SA	A	N	D	SD	M	Max	Min	Std. D	
7. Continuous assessment ensures quality is maintained.	F	17	61	1	1	2	4.10	5.00	1.00	0.70	
	%	20.7	74.4	1.2	1.2	2.4					
8. Timely feedback ensures lead time reduction.	F	29	49	0	2	2	4.23	5.00	1.00	0.79	
	%	35.4	59.8	0.0	2.4	2.4					
9. Direct involvement of suppliers ensures quality. Products.	F	19	60	0	2	2	4.13	5.00	2.00	0.70	
	%	23.2	73.2	0.0	2.4	2.4					
Valid N		82									

From the study findings, majority 78(95.1%) agreed while 3(3.6%) disagreed regarding continuous assessment of suppliers(M=4.10, Std D=0.70). In relation to MTRH having communication network, majority agreed 78(95.2%) while 4(4.8%) disagreed (M=4.23, Std D=0.79). Lastly, whether MTRH involves their suppliers in product design,majority 79(96.4%) agreed while 4(4.8%) disagreed (M=4.13, Std D=0.75). First and second statements had a min of 1.00 and max of 5.00 while the last statement has a min of 2.00 with of 5.00. These findings are in line with findings of Humphreys (2013) who noted that profit maximization and individual competitiveness of firms are benefits supplier development. This implies that supplier development improvesperformance at MTRH.

4.5.4 Procurement Function Findings

Respondents were asked to rank key performance indicators of procurement function in a likert scale. Table 4.10 shows the procurement function results.

Table 4.10 Descriptive Statistics for Procurement Function Results.

Statements		SA	A	N	D	SD	M	Max	Min	Std.D	
10. Quality goods improve procurement function performance.	F	29	51	0	1	1	4.29	5.00	1.00	0.66	
	%	35.4	62.2	0.0	1.2	1.2					
11. Organization has cost control approaches.	F	11	54	15	1	1	4.12	5.00	1.00	0.69	
	%	13.4	65.9	18.3	1.2	1.2					
12. Timely delivery improves procurement performance.	F	16	59	4	2	1	4.16	5.00	1.00	0.67	
	%	19.5	72.0	4.9	2.4	1.2					
13. Supplier relationships improve procurement operations.	F	24	56	0	1	1	4.06	5.00	2.00	0.63	
	%	29.3	68.3	0.0	1.2	1.2					
Valid N		82									

Respondents agreed 80(97.6%) while only 2(2.4%) disagreed that quality of goods improve procurement function performance (M=4.29, Std D=0.66). Regarding organization having appropriate cost control approaches, majority agreed 65(79.3%) while 2(2.4%) disagreed (M=4.12, Std D=0.69). On whether timely delivery improves procurement function performance, majority agreed 75(91.5%) while 3(3.6%) disagreed (M=4.16, Std D=0.67). Lastly, respondents 80(97.6%) agreed while 2(2.4%) disagreed that supplier relationships improves procurement operations (M=4.06, Std D=.63). These findings concur with findings of Andersen and Water (2103) whonoted that timely delivery, creating relationships with suppliers and efficiently cost control are key measurements of performance in a procurement function. This implies that MTRH procurement function performance is largely dependent on supplier relationship practices of supplier segmentation, evaluation and development. Key measures of performance are quality and timely delivery of goods, supplier lead time reduction and efficient and effective procurement process.

4.6 Assumptions of Regression Model

Normality, linearity, homoscedasticity, multicollinearity and independence of errors assumption were tested by the study.

4.6.1 Normality assumption

Normality assumption in the study was tested using Shapiro-Wilk test. The study assumed that all the variables have a normal distribution. The results are shown in Table 4.11

Table 4.11 Test Results for Normality Assumption

Variables	Statistic	Shapiro-Wilk df	Sig.
Supplier Segmentation	0.908	6	0.272
Supplier Evaluation	0.807	3	0.258
Supplier Development	0.912	18	0.410

The findings from these tests revealed that all the statistics were more than 0.05, meaning that the normality assumption is not violated for all the variables under investigation. From the figures, there is a normally distributed residual. This implies that study variables had a normal distribution. Hence, normality assumption was not violated by the study.

4.6.2 Homoscedasticity

The study used Levene’s test of equality of variances to for the assumption of homoscedasticity. Homoscedasticity applies to multiple regressions and as noted by Tabachnick and Fidell, (2013). The assumption results are shown in shown in Table 4.12.

Table 4.12: Test Results for Homogeneity of Variances

Variables	Levene Statistic	df1	df2	Sig.
Supplier Segmentation	6.975	10	94	.000
Supplier Evaluation	8.458	11	98	.000
Supplier Development	12.688	10	98	.000

Testing for homoscedasticity was necessitated by use of hierarchical multiple regression as the principal inferential statistical approach. Results shown in Table 4.11 indicate that at 5% level of significance, none of the Levenes statistic for supplier relationship was significant (all probabilities associated with Levenes Statistic were above significance level). This indicates that homoscedasticity requirement was achieved.

4.6.3 Multicollinearity Assumption

Multicollinearity was tested using Variance Inflation Factor (VIF) and tolerance. The threshold in the regression model should be 0.10. The results are shown in Table 4.13.

Table 4.13 Test Results for Multicollinearity

Variables	Collinearity Statistics	
	Tolerance	VIF
Supplier Segmentation	0.920	1.087
Supplier Evaluation	0.901	1.109
Supplier Development	0.902	1.109

From the analysis of findings, all the independent variables meet the tolerance threshold of 0.10 thus making all the independent variables relevant to the study. Supplier segmentation (tolerance=0.920; VIF= 1.087), supplier evaluation (tolerance=0.901; VIF= 1.109), supplier development (tolerance=0.902; VIF= 1.109). To test for multicollinearity, the Variance Inflation Factor (VIF), this is known to assess the increase in the variance of an estimated regression coefficient when there is correlation among the predictors (Tabachnick&Fidell, 2013). The threshold for rejecting existence of multicollinearity was therefore set at a maximum value of 5. VIF values were below the threshold value of 5. The general rule of thumb is that VIF exceeding 4 warrant further investigations, if there are two or more variables that will have a VIF around or greater than 5, one of these variables must be removed from the regression model (Bryman& Cramer, 2012). The VIF values found in table 4.12 show that there was no multicollinearity among the independent variables, since all the values are below 5. This implies that the results of the multiple regression equation are not misleading, since the independent variables in the multiple regression equation are not highly correlated among themselves.

4.7 Inferential Analysis

Inferential analysis was conducted to ascertain the effect of supplier relationship on performance of MTRH procurement function by testing the formulated hypotheses specifically to ascertain the influence of the conceptualized supplier relationship on performance of MTRH procurement function by testing the formulated hypotheses. Correlations analysis was first conducted between each determinant on performance to establish the existing relationship. The study used correlation analysis and regression analysis as its inferential statistics. The study started with testing of regression models assumptions.

4.7.1 Correlation Results

The research carried out correlation analysis between the variables of the study using Pearson product-moment correlation coefficient. Correlation coefficient of +1 indicates that two variables are perfectly related in a positive linear sense. Correlation Coefficient was used to test whether there existed interdependency between independent variables and whether the independent variables were related to performance of MTRH procurement function. Correlation coefficients range between 0.0 and 1.0. Values between 0.20 and 0.39 are considered very weak coefficients, between 0.40 and 0.59 are considered as weak,

between 0.60 and 0.79 are considered as moderate while values of between 0.80 and 1.0 are considered very strong. Table 4.14 shows the correlation test results.

Table 4.14 Pearson’s Correlations Coefficient Results

	Performance of Procurement function	Supplier Segmentation	Supplier Evaluation	Supplier Development
Performance of Procurement function.	1			
Supplier Segmentation	.558**	1		
Supplier Evaluation	.382**	.225*	1	
Supplier Development	.376**	.224*	.264*	1

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

* . Correlation is significant at the 0.05 level (2-tailed).

The findings show that there is a positive correlation between supplier relationship on procurement function performance at MTRH. Supplier segmentation has a positive moderate correlation with procurement function performance ($r=0.558$, $p< 0.01$). There exist a positive but very weak correlation between supplier evaluation and procurement function performance at MTRH ($r=0.382$, $p=< 0.01$). With the significance level of 0.01, supplier development has a positive but very weak correlation with performance of procurement function ($r=0.376$, $p=< 0.01$). This finding implies that supplier relationship practices of supplier segmentation, supplier evaluation and supplier development enhances performances of procurement function in MTRH.

4.7.2 Multiple Linear Regression Analysis

Multiple linear regression analysis was used to determine the existing relationships between supplier relationship and procurement function performance at MTRH. Independent variables were regressed on the dependent variable in the regression model. The model results are shown in Table 4.15

Table 4.15 Multiple Regression Model Summary Results

R	R Square	Adjusted R Square	Std. Error of the Estimate
.650 ^a	.4225	.400	.45153

a. Dependent Variable: Procurement function performance

b. Predictors: (Constant), supplier segmentation, supplier evaluation and supplier development

R-Squared is used to measure goodness of fit of a model. It is a measure of the actual statistical data as approximated by the regression line. It also measures the proportion of the variation in dependent variable well explained by independent variables. From the results on model summary $R= 0.650$, $R\text{-Square}= 0.4225$, adjusted $R\text{- Square}= 0.400$ and the standard error = 0.45153. Correlation coefficient (R) shows the degree of association between supplier relationship and performance of procurement function. $R=0.650$ is an indication that there is a strong linear relationship between supplier relationship and procurement function performance. The findings show the coefficient of determination (Rsquare) for the independent variables was 0.4225. This indicates that there are 42.25% variations in procurement function performance as explained in the predictor variables in the model. This implies that the difference of 57.75 % of the variations is because of other factors not included in the study.

4.7.3 Assessing the Fit of the Multiple Regression Model

Multiple regression model was tested on goodness of fit for the data. Analysis of Variance (ANOVA) was regressed to establish the influence of independent variables on performance. The analysis results are shown in Table 4.16.

Table 4.16 Results of ANOVA

Model		Sum of Squares	df	Mean Square	f	Sig.	Durbin-Watson
1	Regression	11.609	3	3.870	18.980	.000 ^b	2.129
	Residual	15.903	78	0.204			
	Total	27.512	81				

a. Dependent Variable: procurement function performance

b. Predictors: (Constant), supplier segmentation, supplier evaluation and supplier development

The findings of the study indicate that the relationship between the independent variables and the dependent variable was statistically significant ($f=18.980$; $P=0.000$). This therefore confirms that supplier segmentation; supplier evaluation and supplier development influences the procurement function performance in MTRH.

4.7.4 Regression Coefficients

The study conducted t-test of statistical significance of each individual regression coefficient. The study was conducted to examine whether individual regression coefficients were statistically significant. The analysis results are shown in Table 4.17.

Table 4.17 Multiple Linear Regression Model Significant Test Results

Model	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	T	Sig
(Constant)	1.327	.390		3.404	.001
Supplier segmentation	.329	.064	.460	5.121	.000
Supplier evaluation	.182	.074	.222	2.453	.016
Supplier development	.163	.069	.214	2.366	.020

a. Dependent Variable: Procurement function performance

Supplier segmentation, supplier evaluation and supplier development have a constant value of 1.327. Supplier segmentation is positively and statistically significant influences procurement function performance of MTRH ($\beta =0.329$; $p=0.000$). This finding is in line with findings of Mungai (2014) who found out that suppliers are important in strengthening performance of real estate industry. Suppliers should therefore be segmented. Also ($\beta =0.182$; $p=0.016$) indicates that supplier evaluation is positively and statistically significant on the procurement function performance. This finding is in line with findings of Dobos, (2013) who found out that supplier evaluation is one of the supplier quality management practices undertaken by organizations in environmental management.

Benefits of supplier evaluation include lead time reduction. Further, supplier development has a positive and statistically influence on procurement function performance of MTRH ($\beta =0.163$; $p=0.020$). Study undertaken by Krause (2012) coincides with this study finding who established that supplier development forms basis for quality products and services. Equation 4.1 presents the multiple linear regression model equation.

$Y= 1.327+ 0.329X_1+0.182X_2+0.163X_3,\dots\dots\dots$ Equation 4.1

4.7.5 Hypotheses Test Results

In the study, the null hypothesis H_{01} hypothesized that supplier segmentation has no significant influence on performance of procurement function at Moi Teaching and Referral Hospital. The results showed that supplier segmentation is a significant predictor performance of procurement function at Moi Teaching and Referral Hospital ($\beta =0.460$; $p< 0.05$). The β factor of 0.460 indicates that supplier segmentation influences the performance of procurement function at Moi Teaching and Referral Hospital. The P- value of 0.000 that is less than 0.05 indicates the significant influence of supplier segmentation on performance of procurement function at Moi Teaching and Referral Hospital. Hence, the null hypothesis that supplier segmentation does not significantly influence the performance of procurement function at Moi Teaching and Referral Hospital was rejected at significance level of 5%. The findings strongly concur with the findings of Masiko (2013) who noted that supplier segmentation is critical when evaluating the value of suppliers on performance.

Secondly, the null hypothesis H_{02} hypothesized that supplier evaluation supplier segmentation has no significant influence on performance of procurement function at Moi Teaching and Referral Hospital. The findings of the study ($\beta =0.222$; $p<0.05$) indicates that supplier evaluation influences the performance of procurement function. The P- value of 0.016 that is less than 0.05 indicates the significant influence of supplier evaluation on performance of procurement function at Moi Teaching and Referral Hospital. Hence, the null hypothesis was rejected at significance level of 5%. These findings are in line with findings of Dobos (2013) who found out that supplier quality management results from supplier evaluation and practices undertaken when accessing the value of a supplier.

Lastly, null hypothesis H_{03} hypothesized that supplier evaluation supplier development has no significant influence on performance of procurement function at Moi Teaching and Referral Hospital. The results were ($\beta =0.214$; $p>0.05$). This indicates that supplier evaluation influences performance of procurement function at Moi Teaching and Referral Hospital. The P-value of 0.020 is less than 0.05 meaning that there is a significant influence of supplier development on performance of procurement function. Therefore, the null hypothesis was rejected at 5% level of significance. This implies that supplier development has a significant influence on performance of procurement function at Moi Teaching and Referral Hospital. These findings are in

line with findings of Ochieng (2014) who noted that supplier development is a pre-require in purchasing strategy of a procuring entity. The p- values were less than 0.05 significance level.

From the results, changes to supplier segmentation by a unit would lead to 0.329 units change in performance of procurement function at Moi Teaching and Referral Hospital. In addition, changing a unit of supplier evaluation would lead to 0.182 units change in change in performance of procurement function at Moi Teaching and Referral Hospital. Lastly, a unit change in supplier development would lead to 0.163 changes in performance of procurement function at Moi Teaching and Referral Hospital. The results also imply that supplier segmentation($\beta =32.9\%$) influences performance of procurement function at Moi Teaching and Referral Hospital most followed by supplier evaluation ($\beta =18.2\%$) and lastly supplier development ($\beta =16.3\%$). Hence from the findings, the entire variables are statistically significant predictors of performance of procurement function at Moi Teaching and Referral Hospital. Table 4.18 shows the summary of hypothesis testing

Table 4.18: Summary for Hypothesis Testing

Hypothesis	β	Accept/Reject
Ho₁ There is no significant relationship between supplier segmentation and performance of procurement function at Moi Teaching and Referral Hospital.	$\beta=0.329;p=0.000 < 0.05$	Reject Ho ₁
Ho₂ There is no significant relationship between supplier evaluation and performance of procurement function at Moi Teaching and Referral Hospital.	$\beta =0.182; p=0.016 < 0.05$	Reject Ho ₂
Ho₃ There is no significant relationship between supplier development and performance of procurement function at Moi Teaching and Referral Hospital.	$\beta =0.163; p=0.020 < 0.05$	Reject Ho ₃

V. Summary, Conclusion And Recommendations

5.1 Introduction

This chapter covers the summary of major finding based on the results, conclusion, recommendations for improving the performance of MTRH procurement function and areas warranting future research studies.

5.2 Summary of Findings

This section highlights the summary results on supplier segmentation, supplier evaluation and supplier development on performance of MTRH procurement function.

5.2.1 Supplier Segmentation and Performance of MTRH Procurement Function.

The study sought to establish the influence of supplier development on performance of MTRH procurement function. Geographical, income and occupation were used to measure this variable. Supplier segmentation was found to positively and significantly influence performance of MTRH procurement function. The study established that MTRH procurement function adopted supplier relationship practice of segmentation in trying to create relationship with their suppliers. Among the variables tested in the study, supplier segmentation was found to have the highest influence among other variables. Findings therefore meant that the null hypothesis that there is no significant relationship between supplier segmentation on performance of MTRH procurement function was rejected.

5.2.2 Supplier Evaluation and Performance of MTRH Procurement Function.

The second objective sought to determine the influence of supplier evaluation on performance of MTRH procurement function. The study found out that continuous improvement was positively and significantly correlated to performance of MTRH procurement function. Practices used by MTRH procurement function when evaluating their supplier include; extent of technology, financial capabilities, ability to supply quality products. Findings therefore meant that the null hypothesis that there is no significant relationship between supplier evaluation and procurement function performance was rejected.

5.2.3 Supplier Development and Performance of MTRH Procurement Function.

The third objective sought to determine the influence of supplier development on the performance of MTRH procurement function. The study found out that supplier development was positively and significantly related to performance of MTRH procurement function. Supplier development was conducted through assessment, feedbacks, supplier incentives and direct involvement of suppliers. This therefore meant that supplier development is critical determinant for performance of MTRH procurement function. Findings

therefore meant that the null hypothesis that there is no significant relationship between supplier development and performance of MTRH procurement function was rejected.

5.2.5 Performance of MTRH Procurement Function.

With regard to performance, the study found out that procurement function enjoyed substantial performance in terms of cost control, quality, lead time and efficiency. Findings therefore established that performances of MTRH procurement function relied heavily on supplier relationship practices of supplier segmentation, supplier evaluation and supplier development.

5.3 Conclusions of the Study

This section provides conclusion based on the three variables of supplier segmentation, supplier evaluation and supplier development.

5.3.1 Supplier Segmentation

The study concludes that supplier segmentation influences the performance of MTRH procurement function. The study found that supplier development at MTRH is done in three major forms of geographical, income and occupation. Supplier segmentation helps in improving performance through reduction in lead time and ensuring efficiency in delivery of goods.

5.3.2 Supplier Evaluation

The study concludes that supplier evaluation positively and significantly influences performance of MTRH procurement function. The study found that supplier evaluation is done basing on technology adoption by suppliers, ability to deliver quality products and financial capability of suppliers.

5.3.3 Supplier Development

Lastly, supplier development was found to significantly influence the performance of MTRH procurement function. The study found that assessment, timely feedback, providing incentives to suppliers and direct involvement are some of the practices used in supplier development at MTRH. In conclusion, supplier relationship practices were found to positively and significantly influence the performance of MTRH procurement function.

5.4 Recommendations of the Study.

This section takes an overview of recommendations of the study in the regards to both policy makers and the relevance of the theories used in the study.

5.4.1 Recommendations on Policy Formulation and Practice

This section recommends implementation of policies that govern supplier relationships by management of MTRH procurement function. The study recommends MTRH procurement function and functions of other organizations should strive to establish supplier relationship practices of supplier segmentation, suppliers evaluation and supplier development. There is also need for management to encourage continued implementation of supplier segmentation, supplier evaluation and supplier development practices in order to optimize performance of procurement function which subsequently improves the overall performance of MTRH.

5.5 Suggestions for Further Studies

The study was limited to MTRH procurement function. Future studies should be conducted in other referral hospital to further explore on supplier relationship influence on performance. Future studies should incorporate both longitudinal and cross-sectional studies to confirm this. The study used grey system theory, lean supplier competence model and fuzzy set theory. Future studies should incorporate other relevant theories and models in conducting the study. Future research studies should also should exploit the influence of other variables other than supplier segmentation, supplier evaluation and supplier development. This is to establish other supplier relationship practices that influence performance of procurement functions.

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