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Obuya, C. T., & Otsyula, J.

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ITEM SPECIFICATION AND SUPPLY CHAIN EFFICIENCY OF DEVOLVED HEALTH SYSTEM IN KENYA

[1] Obuya, C. T., & [2] Otsyula, J.

[1] Student, MSc Procurement and Logistics, Jomo Kenyatta University of Agriculture & Technology [JKUAT], Kenya
[2] Doctor, Lecturer, Jomo Kenyatta University of Agriculture & Technology [JKUAT], Kenya

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ABSTRACT

Many companies know how to make their global supply chains run efficiently. To measure supply chain effectiveness, it is important to look at not just what is going on within the walls of your own company, but how this is ultimately impacting stakeholders. This study aimed to establish the contributions of item specification on supply chain efficiency. It adopted the descriptive case study design and used both stratified and purposive sampling techniques. The study results showed that item specification significantly contributed to supply chain efficiency in Kenya's Health care sector. The study recommended that the health facilities regularly do inventory assessment before procuring new items. The health facilities also need to invest in facilities that will enable them accurately estimate the quantities needed against what is available to determine their next purchases.

Key Words: *Item Specification, Supply Chain Efficiency, Customer Satisfaction, Procurement Performance.*

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INTRODUCTION

Supply chain management (SCM) has been termed as a crucial function in many organizations whether in the service or production industry. This is because every organization aims at satisfying their customers whether internal or external which in turn lead to improved performance (Kopczak & Johnson 2003). Supply chain governance has changed the way public sector operates. This is as a result of integration which enhances co-ordination of demand in order to satisfy customers' needs. Carter and Rogers (2008) pointed that Supply Chain Governance not only help organizations to streamline and manage supplier quality and supplier performance, but also enables them to identify, mitigate and manage supplier risks for key procurement and manufacturing processes.

Supply chain efficiency yields benefits to organizations such as cost reduction, enhanced profitability, assured supplies, quality improvements and competitive advantage as was noted by Batenburg and Versendaal (2006). An effective SCM ensures availability of the right goods or services in the right quantities, available at the right time, for the right place and at reasonable prices, and at recognizable standards of quality (WHO, 2007). In Ghana for instance, there has been an increase in finance by the World Bank for procurement of health sector goods; pharmaceuticals, vaccines, contraceptives and nutritional supplements under various health, population and nutrition projects over the past few years, and this trend is expected to continue (Segal & Summers, 2012).

This calls for proper procurement planning to provide right inputs at right time, and with right amount. However, the link between procurement planning and supply chain efficiency in the health services sector has not yet been fully understood.

Procurement planning is a tool that facilitates early and smooth procurement process and draws businesses' early attention to procuring entity's planned procurement of the forthcoming financial year. Its objective is to avoid haphazard procurement and make the government marketplace more attractive and transparent to suppliers and service providers (Mlinga, 2014). According to (Ezeh, 2012) Procurement planning is one of the primary functions of procurement with a potential to contribute to the success of public institution's operations and improved service delivery (Basheka, 2008). It is a function that sets in motion the entire acquisition/procurement process of public institutions. Despite this importance, very limited scientific research has been done to examine the extent to which efforts in procurement planning can contribute to effective public.

Statement of the Problem

The central government spends about Ksh. 234 billion per year on procurement. However, on annual bases, the government losses close to Ksh. 121 billion about 17 percent of the national budget due to inflated procurement quotations. According to Public Procurement Oversight Authority (PPOA 2014), most of the tendered products/services in many public hospitals have a mark-up of 60 percent on the market prices. In the year 2014, county governments, under which public hospitals fall lost 4.2 billion shillings (Daniel, 2015). The inefficiency and ineptness of overall implementation of procurement plan in many public hospitals contributes to loss of over Ksh.500 million annually (Tom, 2015). Country Procurement Assessment Report (CPAR), prepared by a team of Government officials, World Bank and donor staff, and national consultants, reveals substantial inefficiency in public procurement and concludes that the principle of "value for money" is not achieved. This is true for both governments financed and donor financed procurement. Majority of these challenges in the health sector can be traced back to the procurement planning (World Bank, 2014). Research by the Price Water House Coopers found that as much as 37% of the potential value of a procurement plan in public hospital in Kenya is lost during Implementation. According to health sector performance report 2013 and 2014 health institutions are ailing from shortage of drugs or

holding on expired drugs. Health centres and dispensaries are hardly stocked with the recommended medicines (Ondigi & Muturi 2015). This is suggestive of poor planning and high wastage of public resources in the counties this affects efficient delivery of quality services. Some of these losses would have been mitigated if the supply chain was handled properly. Further, inflexible and bureaucratic systems of SCM in the public sector have contributed to unacceptable contract delays, increased costs and potential for manipulation, creating a perception that public expenditure is low ineffective, expensive and often corrupt calls for implementation of supply chain governance mechanism (Ngugi & Mugo, 2011). While there is growing evidence of the losses due to poor procurement planning and implementation in the country, little is known on how this impact the supply chain efficiency in the public health sector. Previous studies in health sector procurement have studied the two constructs of planning and supply chain efficiency separately and so far no attempt has been made to link them. This study, therefore, sought to conduct an in depth analysis of the influence of procurement planning on supply chain efficiency within the context of devolved system of government specifically in Siaya County, Kenya.

Objective of the study

The main objective of this study was to determine the effect of item specification on supply chain efficiency of devolved health systems in Kenya with emphasis on The County Government of Siaya. The study was guided by the following research hypothesis.

- $H0_1$: Item specification has no significant effect on the Supply chain efficiency in healthcare facilities in Siaya County.

LITERATURE REVIEW

Theoretical Review

Resource Dependency Theory

Resource dependence theory was originated by Pfeffer and Salanchik (1978). The theory takes the view that a business relationship is a social exchange of critical resources with mutual dependency among the exchange partners. Thus, the survival and growth of organizations largely depend on the ability to secure critical resources from the external environment (Casciaro & Piskorski 2005). But a relationship between organizations is not free. Transaction cost analysis (TCA) suggests that every transaction has a cost. These costs are incurred for adaptation, performance evaluation and safeguarding, and are associated with uncertainty, opportunism, and transaction specific assets (TSAs) invested in the relationship. Transaction specific assets refer to the assets specialized to service the particular needs of the exchange parties (Williamson, 1996). Firms invest in TSAs in order to create additional value from an exchange above what standard product and service offerings can do (Ghosh and John,1999). Examples of TSAs include the development of idiosyncratic knowledge, the provision of dedicated human resources and training, and capital investment in specialized equipment and facility improvement (Williamson, 1996)

Although resource dependence theory and transaction cost analysis depart from different points of view (sociology and new institutional economics, respectively), they have something in common. While resource dependence theory focuses on ex ante mutual dependence between exchange partners due to critical resources, transaction cost analysis assumes that two parties are initially independent but develop bilateral dependence ex post due to relationship-specific assets invested over the course of the relationship (Casciaro & Piskorski 2005). Despite these different views, however, both theories recognize the existence of interdependency between exchange partners and the importance of securing valued resources from environmental and behavioral uncertainty (Heide, 1994).

Specifically, based on utilitarian assumptions of self-interested behaviors of exchange partners, transaction cost analysis argues that TSAs raise the cost of safeguarding against a behavioral

uncertainty of an exchange partner such as an opportunistic behavior where one party may exploit the other for unilateral benefits Being unique to a relationship, and possessing little or no value upon the relationship termination, TSAs are often viewed as "valuable but vulnerable" investments (Ghosh & John 2005). Combining the resource and transaction cost perspectives into a strategic point of view, Ghosh & John (1999) proposed a governance value analysis (GVA) framework that links resources, positioning strategy, TSAs and governance. They argue that a firm creates potential market value through a unique positioning and can claim those values through a competitive advantage based on firm-specific resources. In an effort to achieve competitive advantage in the market, firms align themselves with exchange partners (i.e., customers and suppliers) and create joint values, such as cost reduction and/or value addition, through investments in TSAs.

While creating maximum values from the market, (Ghosh & John 2005) argue that firms should safeguard their share of values jointly created as well as their investments in TSAs against opportunism through strategic selection of relationship governance. For example, the authors found, in a later study on industrial alliances, that OEMs given a high level of specific investments achieve a high level of cost reduction from less flexible contracts with their suppliers while achieving a high level of end-product enhancement from more flexible contracts (Ghosh & John 2005). Based on these findings, they suggest that OEMs take different "governance value engineering" approaches to supplier relationship management depending on their primary pursuit of strategic outcomes (i.e., cost reduction vs. product enhancement).

The resource dependency theory was used in this study to give more insight into the resource requirements and procedures of the procuring entities especially with regard to item specification so as to ensure there is supply chain efficiency.

Empirical Literature

Item Specification and Supply Chain Efficiency

Public procurement should understand the elements required to accurately define, represent and fully express the requirements of the requestor and should recognize that a specification may form a part of a wider description of requirements (Wogube, 2011). The statement of requirements must establish an accurate description of the need so that the potential suppliers can provide acceptable solutions. Therefore, this requires appropriate item specification in the organization. Specification is a precise description of the physical or functional characteristics of a product, service or combination; it is a description of what the purchaser seeks to buy and what a bidder must respond to in order to be considered for award of a contract. Specifications generally fall under the following categories: design, performance, combination (design and performance), brand name or approved equal, qualified products list and samples. Specifications may also be known as a purchasing description (Jaafar & Nuruddin, 2012).

A specification may be contained within a wider requirements description, such as a bid document. The requirements description usually describes what is needed by the organization rather than how it is to be provided (Hughes & Thorpe, 2014). The intent of a good specification is to enable suppliers and service providers to compare their products and services against stated requirements that are presented on an equal basis. It will also allow the buying organization to competitively evaluate solicitation responses and determine functional equivalency, if appropriate. The characteristics of specifications for the provisions of services should state the outcome that the user wishes to achieve and may contain elements of both design and performance (Yong & Mustaffa, 2012). Combination specifications also contain these elements and are often used for complex requirements (Kuo, Wei, Lon & Shih, 2012).

Specification characteristics are an accurate, clear, concise and unambiguous description of the

product or service including its process and use (Sindani, 2011). This must be written in language that is understood by the target market. Must be relevant and objectively support the application or intended use. Must provide for maximum acceptable tolerances, enabling fair and equitable competition at both manufacturing and distribution levels. Must allow for measurement, performance testing and acceptance or rejection upon delivery or installation (Ogbadu, 2009). Must allow for alternatives within reasonable and acceptable tolerance levels. Identify physical, functional, environmental and quality characteristics such as design, size, weight, power capacity, output, or grade of component. Identify applicable commercial standards. For example, if using brand name or equivalent, a specific manufacturer's brand name might be cited to describe the standards of quality, performance, etc. needed to meet the requirements of the solicitation. When a brand or make is identified, there must be a model for comparison to an "approved equal" or better (Inyang, Inyang & Glory, 2013).

According to Patel, Jayeshkumar and Bhavsar (2015), a good design specification should be clear, consistent and exact. Reasonable tolerances should be included and should be non-restrictive to encourage competition. A design specification provides explicit information about the requirements for a product and how the product is to be assembled. Design specifications should list minimum requirements and detail test, sampling and inspection methods that will be used to ensure compliance with the specification. Design specifications may have to comply with industry standards (Yong & Mustaffa, 2012). For example, many pharmaceutical products are governed by British Pharmacopoeia for the UK and United States Pharmacopoeia for the U.S. A design specification must include all necessary drawings, dimensions, terms, and definitions of non-standard terms, and the materials used must be described in a manner so that bidders will be able to logically discern cost, process of construction, delivery and implementation of the requirements. Design specifications should state the desired outcome (Hughes & Thorpe, 2014). These specifications carry a high degree of risk for the buying agency as the buyer will be held responsible for design omissions and related errors in the specifications.

A performance specification describes a product or service that provides a general functional recital of performance characteristics required to achieve an end result or outcome desired (Taiwo, Claudius & James, 2012). The specification should be capable of integrating with existing systems and be interchangeable with parts, services or other basic elements of the operation's or product's expected outcome. Performance specifications provide the specific outcome that is required but not the method to achieve that outcome (Ondiek & Odera, 2012). Performance specifications contain output and outcome measures and for this reason are often referred to as outcome or output based specifications. Output measures provide for a series of outputs that deliver a desired outcome. Outcomes should be measurable and define benefits delivered so that corrective deductions may be applied, as applicable, if service levels are not achieved.

Commercial Specifications are usually produced by a national or governing body such as the British Standards Institute (BSI), the International Organization for Standardization (ISO) or the American Society for Testing and Materials (ASTM). Set out standards for the quality of materials that should be used, the quality of work needed in production and any critical dimensions, chemical composition or allowable tolerances (Hughes & Thorpe, 2014). Are used in the production of commercial grade products which are sold by the manufacturer to be more durable, more powerful or longer lasting, or to have a larger capacity in comparison to its consumer grade product counterpart. Are designed to meet a more demanding application, operating need, or requirements and generally cost more versus the consumer grade product. Are usually of a higher

quality or are made of more durable materials, such as motors and bearings being made of metal versus plastic, which are generally not visible to the end user but result in longer product life expectancy and performance (Kuo et al., 2012).

A combination specification incorporates the features and functionality of a design specification with the performance specification. This type of specification is widely used, especially for complex requirements. A combination specification is often used when a single specification cannot adequately describe the more complex products and services. Quality of specifications is also an important item when determining the supply chain. According to Garvin (2013), quality is defined using five different approaches namely; the transcendent approach; the product-based approach; the user-based approach; the manufacturing-based approach; and the value-based approach. The transcendent approach equates quality with Innate excellence: The product-based approach defines quality as a sum or weighted sum of the desired attributes in a product: The user-based approach identifies a high-quality item as one that best satisfies consumer needs or wants (Patel et al., 2015).

Gronroos (2011) defined service quality as a measure of how well the service level delivered meet customer expectations. A common definition of service quality is that service should correspond to the requirements (Edvardsson, 2008). Despite rigorous academic debate and attention to issues related to understanding service quality from an external customer's perspective, research on the procurement needs domain is relatively new (Gremler et al. 2014). Edvardsson (2008) contends that specification is an integral part of the procurement function. Without a quality specification the process can be filled with pitfalls and obstacles for the purchasing department. He lists the characteristics of a good specification as follows; Identifies the minimum requirements of the end user, allows for a fair and open procurement process, provides for testing/inspection to insure the goods/services received meet the standard set forth in the specification and provides equitable award at the lowest possible cost.

METHODOLOGY

The study adopted a descriptive case study research design. The choice of the descriptive case study design is based on the argument by Kothari (2014) that it obtains a description of a particular perception about a situation, phenomena or variable and their views are taken to represent those of the entire population. The target population in this study was a population of 220 senior County officials attached to procurement, administration, health and finance departments in various Sub Counties of Siaya County. The sample consisted of 123 respondents. The study employed stratified random sampling and purposive sampling. A structured questionnaire was used to collect the data. The data was analyzed both qualitatively and quantitatively.

RESULTS AND DISCUSSION

The objective of the study was to determine the effects of Item specification and supply chain efficiency of devolved health system Siaya County. This variable was described in terms of Needs, Quantities and Quality. A five point Likert scale was used to rate responses of this variable and it ranged from; 1 = strongly disagree to 5 = strongly agree and was analysed on the basis of the mean score and standard deviation. The closer the mean score on each item was to 5, the more the agreement concerning the statement. A score around 2.5 would indicate uncertainty while scores significantly below 2.5 would suggest disagreement regarding the statement posed. The findings were presented in Table 1.

Table 1: Item Specification and supply chain efficiency of devolved health system

Statement	SA Freq(%)	A Freq(%)	N Freq(%)	D Freq(%)	SD Freq(%)	Mean	Std Dev
The health facility does thorough needs assessment before embarking on procurement of goods	15(14)	61(57)	21(20)	9(9)	0	3.96	0.71
The health facility does thorough needs assessment before embarking on procurement of services	17(16)	48(45)	25(24)	13(12)	3(3)	3.72	0.65
The health facility does determine the quality of the items for procurement based on the departmental needs	24(23)	39(37)	26(25)	14(13)	2(2)	3.61	0.67
The health facility tries to comply with quality standards	28(26)	54(51)	16(15)	7(7)	1(1)	3.65	0.79
The health facility does invetory assessment before procuring new items	13(12)	49(46)	26(24)	18(17)	0	3.49	0.92
The health facility does estimate the quantities needed against what is available to determine the next purchases	13(12)	50(47)	32(30)	11(10)	0	3.52	0.78
Aggregate						**3.658**	**0.77**

The aggregate mean 3.658 and standard deviation 0.772 suggests that majority of the respondents agreed with the statements describing the Item specification practices in the health facilities in the county. Specifically, majority (mean = 3.96) of the respondents agreed that their health facility does thorough needs assessment before embarking on procurement of goods. Most of the respondents (mean = 3.72) also agreed that their health facility does thorough needs assessment before embarking on procurement of services. Further, the findings suggest that majority of the health facilities in the county do determine the quality of the items for procurement based on their departmental needs as indicated by majority of the respondents (mean = 3.61) and also try to comply with quality standards (mean = 3.65). The findings further indicate that most of the health facilities in the county did inventory assessment before procuring new items (mean = 3.49) and also estimate the quantities needed against what is available to determine the next purchases (mean = 3.52).

This showed that the health facilities in the area were specific about their requirement for goods and services outsourced. According to Yong and Mustaffa (2012), the characteristics of specifications for the provisions of services should state the outcome that the user wishes to achieve and may contain elements of both design and performance. The findings further imply that the health facilities practiced considerable quality control in their procurement. This was important as observed by Edvardsson (2008) who asserted that without a quality specification the process can be filled with pitfalls and obstacles for the purchasing department. In addition, they tried to reduce wastage by making reliable estimates of their quantities.

A correlation was done to determine whether Item specification significantly affected Supply chain

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efficiency in healthcare facilities in Siaya County. The correlation analysis results indicated that there was indeed a significant relationship ($r = 0.443$, $p \leq 0.05$) between the variables. This finding suggests that the relationship between the variables was moderate implying that correct item specification was important to the supply chain efficiency of the healthcare facilities. This finding is consistent with those of Edvardsson (2008) who contends that specification is an integral part of the procurement function.

Regression analysis was used to determine the multiple regression model hypothesized in chapter three held. It was also used to determine how the independent variables influenced the dependent variable collectively. The analysis was also meant to establish the extent to which each independent variable affected the dependent variable in such a collective set up and which were the more significant factors. The results were summarized in Table 2.

Table 2: Linear Regression Analysis Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate
.712[a]	.507	.482	2.449197

The regression analysis in Table 2 above shows that the relationship between the dependent variable and the independent variable had a model correlation coefficient = 0.712. This indicates that a unit increase in item specification will result in an increase in supply chain efficiency by 71.2 per cent.

CONCLUSIONS AND RECOMMENDATIONS

The study revealed that most of the health facilities in the area were specific about their requirement for goods and services outsourced. The findings further revealed that the health facilities practiced considerable quality control in their procurement. In addition, they tried to reduce wastage by making reliable estimates of their quantities. Specifically, majority of the health facility did thorough needs assessment before embarking on procurement of goods. Most of the health facilities also did thorough needs assessment before embarking on procurement of services.

The study concluded that item specification indeed had a significant effect on the Supply chain efficiency in healthcare facilities in Siaya County implying that correct item specification was important to the supply chain efficiency of the healthcare facilities. Further, most of the health facilities in the area were specific about their requirement for goods and services outsourced and practiced considerable quality control in their procurement. In addition, they tried to reduce wastage by making reliable estimates of their quantities.

Following the conclusions of the study, the study made the recommendations that;

Regarding the item specification and supply chain efficiency of healthcare facilities in the area, the study recommends that the health facilities in the area regularly do inventory assessment before procuring new items. The health facilities also need to invest in facilities that will enable them accurately estimate the quantities needed against what is available to determine their next purchases.

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