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SUPPLIER SELECTION PRACTICES AND SUPPLY CHAIN PERFORMANCE OF COUNTY REFERRAL HOSPITALS IN KENYA

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Abstract
The study examined the effect of supplier selection practices on supply chain performance of county referral hospitals in Kenya. Descriptive survey design was utilized. Both stratified random and simple random techniques were used in the selection of 81 respondents. For data collection close ended questionnaires and an interview schedule was used. Data was analyzed using descriptive statistics which entailed frequency and percentage and also using inferential statistics whereby simple linear regression was utilized. Findings revealed that supplier selection practices positively and significantly impacted on the supply chain performance. The study concludes that supplier selection practices can be a strategic organizational weapon which may be used to achieve supply chain performance. The study recommends for supply chain managers in county referral hospitals to take into consideration supplier evaluation and supplier certification as aspects of supplier selection as this may enhance supply chain performance.
Keywords: Supply chain performance, Supplier selection practices.
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1. INTRODUCTION

Supplier relationship management involves motivating supplying firms to act in such a way that organizational needs will be met, identifying suppliers that are really important to the firm's operations and providing guidelines on how to work with different types of suppliers (Schuh, Strohmer, Easton, Hales & Triplat, 2014). One of the strategies of getting the right supply chain is through appraising the suppliers (BCG, 2011). Muhammad, Young and Sonia (2012) identified quality, delivery, risk factor, quality

standards and sustainability factors as supplier appraisal criteria. Suppler selection is a systematic approach of identifying source supplier with who to transact business.

According to Manyega and Okibo (2015) selection of the supplier can give an entity an opportunity to enhance its efficiency and effectiveness. Supplier selection involves a process by which businesses identify, evaluate, and contract with suppliers. The process of selecting important suppliers is essential to the success of any organization, since it directly affects the competitive advantage of the company. In addition to cost, modern organizations must assess a variety of additional quantitative and qualitative elements crucial to their continuous survival and progress when making their supplier decisions (Chemjor, 2015). Studies have acknowledged the benefits of supplier selection practices such as cost reduction, shorter lead time, quality improvements, customer satisfaction, effectiveness, Procurement success (Kiplagat & Kiarie, 2015; Mani, Gunasekaran & Delgado, 2018; Odhiambo, 2015 & Onyango, 2020).

Supply chain managers need to carefully identify the correct strategic suppliers as management gets increasingly reliant on them. Their difficulty is that, despite a wealth of knowledge accessible on the topic of supplier selection, experts still can't agree on which aspects should be prioritized. After scanning, analyzing, examining and filtering the supplier's basic background and bio data, the best supplier on the market who can help accelerate the organization's performance in a more positive direction can be chosen (Kamenya, 2014). It is impossible to emphasize the importance of supplier selection within the purchasing function, as the dynamic business environment caused by technical advances and complex market demands has driven procuring entities to actively seek out new suppliers who can match their business requirements. Public firms face a myriad of issues such as due to ineffective supplier evaluation for instance overdue deliveries, goods and services of low quality, lack of ability to complete orders including lawsuits resulting due to overdue payments (Prasad, Kamath, Barkur & Naik, 2016).

The Kenyan healthcare sector is composed of private, public as well as faith-based/NGO organizations. The study focused on County Referral hospitals in Western region Counties specifically in Busia, Vihiga, Kakamega and Bungoma. The County referral hospitals are public hospitals. There are many unresolved issues regarding the supply chain performance of public entities in the eyes of their stakeholders such as supplier management practices that are too time-consuming, which in turn causes delays in the procurement of goods and services. Delays in procurement and the purchase of inferior or undesirable goods and services have plagued the majority of government organizations for a variety of reasons (Masindano, Makokha & Namusonge, 2018).

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1.1 Statement of the problem

The management of health care in Kenya has been decentralized to county governments in accordance with the country's current Constitution. It has been difficult for public health organizations to create and implement supply chain performance. Chemoiywo (2018) noted that public hospitals supply chain performance decreased due to supplier management inadequacy. Poor supplier management accounts for fifty percent of the costs in public hospitals. Performance of supply chain in Kenya's public health institutions has declined in the previous four years (Areri & Gekara, 2019). public hospitals often face challenges in the acquisition of medical supplies (RoK, 2019). An analysis conducted by AfriCOG (2015) contended that despite the advances in supplier management, service performance in public hospitals in Kenya still remains substandard. Thus County referral hospitals should adopt supplier management strategies to improve on performance of supply chain. Research has been done on the impact of supplier selection however the studies were done in different sectors such as State corporation (Kiplagat & Kiarie, 2015), universities (Mutai & Okello, 2016) and County government (Onyango, 2020). Further, the studies focused on different aspects of supplier selection for instance method, process and criteria (Kiplagat & Kiarie, 2015); quality, suppliers' financial capability and their competencies (Mutai & Okello, 2016); quality commitment, financial stability and supplier competence (Wanzala & Moronge, 2018). This study aimed to address the identified knowledge gaps by assessing the effect of supplier selection practices on Supply Chain Performance of County Referral Hospitals in Kenya.

1.2 Objective of the study

To assess effect of supplier selection practices on Supply Chain Performance of County Referral Hospitals in Kenya.

1.3 Hypothesis of the study

Ho: Supplier selection practices has no significant effect on supply chain performance of County Referral hospitals in Kenya

2. LITERATURE REVIEW

2.1 Theoretical framework

The research was guided by the Grey System Theory whereby a seven-stage model of grey correlation analysis was refined by Zhou (Zhou & Zhu, 2012). Some examples of these processes are grey generation, which entails gathering information about ambiguous topics, grey modeling, which is

performed to establish a set of variation and differential equations for such topics, grey prediction, which aims to make a qualitative forecast, grey decision, grey relational analysis, and grey control. Based on Grey System Theory, Liu, Yang, Xie and Forrest (2016) suggested that in the real world of business, supplier selection typically takes place in an imperfect information environment. Supplier selection therefore is fraught with a certain amount of risk. This context emphasizes the need for the development of indicators or criteria, either qualitative or quantitative, that can be applied to the provider prior to selection. With a target in mind, we then assign relative importance to each evaluation factor based on the qualities of the resources we'll be needing to source (Zhou & Zhu, 2012).

The theory is relevant to the research since it encompasses the entire supplier selection process by, among other things, outlining criteria and a technique for making that choice. Supply chain performance is positively impacted when a good supplier is chosen, which is made easier thanks to the theory's practical and positive benefit of enhancing efficacy in the selection process.

2.2 Conceptual review

2.2.1 Supplier selection

Supplier selection and evaluation process entails the process of evaluating and approving potential suppliers by quantitative assessment (Luthra, Govindan, Kannan, Mangla & Garg, 2017). Supplier selection is a process by which businesses identify, evaluate and even contract with suppliers. Effective selection of suppliers directly affects a firm's productivity and credibility (Galankashi, Helmi & Hashemzahi, 2016). Wanzala and Moronge (2018) contended that supplier evaluation was one of the techniques used for selecting the best suppliers.

2.2.2 Supply chain performance

Supply chain performance is the degree in which an entity is able to attain the requirements of the final end users and this includes the quality issues of the product, ensuring that there is delivery on time all aimed at delivering value (Mani, Gunasekaran & Delgado, 2018). Studies have measured supply chain performance using aspects such as cost reduction, shorter lead time, quality improvements, customer satisfaction (kiplagat & Kiarie 2015), Output quality, Customer satisfaction, effectiveness (Onyango, 2020). In this study the indicators of supply chain performance included timely delivery of goods/services, user satisfaction, cost savings and quality of goods/services.

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2.3 Empirical review on supplier selection practice and supply chain performance

Danese (2013) conducted a study on supplier selection and evaluation determinants in Pakistan's Telecommunication firms and found that supplier financial capacity as an aspect of supplier selection and evaluation enhanced procurement performance. A study done in Nigerian quoted food and beverage firms by Opaleye, Ojelade and Aremu (2020) confirmed that supplier appraisal positively and significantly influenced performance. Prasad, Kamath, Barkur and Naik (2016) established that supplier evaluation impacted on process improvements. Manyega and Okibo (2015) investigated the impact supplier selection had on the procurement function performance and concluded that supplier selection gives the firm an opportunity to enhance its efficiency and effectiveness. Kiplagat and Kiarie (2015) established that supplier evaluation and selection practices influenced supply chain performance at KEMSA (state corporation). The indicators of Supplier Selection and Evaluation were method, process and criteria and data was collected using questionnaires only. Mutai and Okello (2016) examined link between supplier evaluation and performance in universities and found that engaging of suppliers while taking into consideration issues of quality, the suppliers financial capability and their competencies have an influence on performance. The study concluded that a firm performance was informed by the suppliers' selection. Using descriptive survey approach Odhiambo (2015) explored supplier selection criteria, principles of supplier selection and the link between supplier selection and success in procurement. In Nairobi County. For data collection questionnaires were used. most participants were in agreement with the selection standards used and findings revealed that price was the most considered aspect of supplier selection. In addition, findings demonstrated that supplier selection criteria influenced procurement outcomes.

Krop and Iravo (2016) used descriptive research design to examine how supplier selection affected efficiency of the procurement process in the public sector. The study was done at West Pokot County Government. Findings revealed that supplier selection positively correlated with the efficiency. However, the study was done in only one organization.

Using descriptive approach Obinda and Gichure (2017) investigated the impact of supplier selection on the performance of the supply chain in Nairobi City County. Findings revealed that supplier selection influenced performance. Nyakoe and Muturi (2017) posited that the procurement function performed much better when due diligence was undertaken in the selection of suppliers. Wanzala and Moronge (2018) found that supplier evaluation significantly and positively influenced supply chain performance of County governments in Kenya. Supplier evaluation had quality commitment, financial stability and supplier competence as its indicators. Onyango (2020) found that supplier selection influenced performance on alcoholic beverage companies and recommended for studies to be done in non-alcoholic beverage

companies. The study further recommended for the supply chain managers to improve on their supplier selection.

The reviewed studies were done in different sectors, had different measures of both supplier selection and supply chain performance. Further in most of the studies data collected using close ended questionnaire. However, this study intends to use both questionnaire and interview schedule for triangulation purposes. Based on the above information, the following hypothesis can thus be established: Ho: Supplier selection practices has no significant effect on supply chain performance of County Referral hospitals in Kenya.

3. METHODOLOGY

The study used descriptive survey research design The study was done in four County Referral Hospitals: Kakamega County Referral hospital, Busia County referral Hospital, Bungoma County Referral Hospitals and Vihiga County Referral Hospital in western region Kenya. Stratified random and simple random methods were utilized in selecting 81 respondents from the four County Referral Hospitals. Purposive sampling was used to select 4 suppliers from each hospital who were to be interviewed. Primary data was collected using well-designed close ended questionnaires and an interview schedule. Quantitative data was analyzed using descriptive and inferential statistics. A pilot study was conducted at a County Referral Hospital in Trans Nzoia County where 8 respondents were selected. Quantitative data was analyzed using both descriptive and inferential statistics. Content analysis was used to analyze data collected using the interview schedule. Descriptive analysis included; frequencies and percentages while inferential analysis involved simple linear regression analysis. The Regression model used was as follows;

$Y = \beta 0 + \beta 1X1 + \varepsilon$ Where;

Y= Supply chain Performance

B0= Constant

X= Supplier selection practices

B1= Regression co-efficient

ε=Error term

4. RESULTS AND DISCUSSION

4.1 Response rate

The study had a response rate of 72.8% as 59 out of 81 questionnaires were returned. The response rate is desirable as its above the recommended 70% (Richard, 2015).

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4.2 Pilot results

Reliability test was conducted using Cronbach alpha test and it was established that supplier selection practices had a value of 0.820 and supply chain performance had 0.849 thus being above the threshold of 0.7(Sanchez,2013).

4.3 Descriptive statistics

4.3.1 Supplier selection practices

Table 1 summarizes the descriptive statistics on Supplier Selection Practices by indicating the value for frequency and percentages In the scale of 1-5 (5- strongly agree, 4-Agree, 3-partially agree, 2-Disagree and 1-strongly disagree, f-frequency, %-percentage).

TABLE 1. SUPPLIER SELECTION PRACTICES

Statements	Stats	5	4	3	2	1
The hospital uses technical capability, criteria when selecting suppliers	f	8	28	11	9	3
	%	13.6	47.5	18.6	15.3	5.1
The hospital uses technical expertise criteria when selecting supplier	f	8	31	12	4	4
	%	13.6	52.5	20.3	6.8	6.8
The hospital compares suppliers based on responses	f	12	25	7	12	3
	%	20.3	42.4	11.9	20.3	5.1
The hospital ranks suppliers on responsiveness	f	11	25	16	4	3
	%	18.6	42.4	27.1	6.8	5.1
The hospital considers suppliers past performance and current relationship when selecting suppliers	f	6	30	18	3	2
	%	10.2	50.8	30.5	5.1	3.4

Source: Researcher's results

Table 1 shows that nearly half of respondents (47.5%) agreed and (13.6%) strongly agreed that the hospital takes technical capacity into account when choosing suppliers. 52.5% of respondents agreed that the hospital considers technical expertise criteria when picking supplier.

Furthermore, 20.3% of respondents strongly agreed that the hospital does compare supplies depending on responses, whereas 42.4% of respondents agreed. The data also showed that the vast majority of respondents (42.4%) agreed, and 27.1% partially agreed, that the hospital ranks suppliers on responsiveness. A total of 50.8% of respondents agreed, with 10.2% strongly agreeing and 3.4% strongly disagreeing that the hospital takes into account the performance history and current connection of suppliers when making purchases.

According to Kannan and Choon (2002), the selection of a supplier is crucial because it establishes the standards by which that supplier will be judged in the future. Consequently, danger can be mitigated or

avoided altogether with the help of a thorough selection procedure that takes into account relevant performance parameters. Obinda and Gichure (2017) found that supplier selection influenced performance of manufacturing firms.

The interview results revealed that the price cited by suppliers, financial and technical capacity of the suppliers and supplier tract record were crucial criteria for making supplier selections. Further the respondents who were interviewed pointed out that Political involvement, forged paperwork from vendors and poor risk estimating techniques all worked against a fair and balanced selection process. They also alluded to the fact that supplier selection played an important role in achieving contractual goals and reducing risk.

4.3.2 Supply chain performance

Table 2 summarizes the descriptive statistics on Supply chain performance by indicating the value for frequency and percentages In the scale of 1-5 (5- strongly agree, 4-Agree, 3-partially agree, 2-Disagree and 1-strongly disagree, f-frequency, %-percentage).

TABLE 2. SUPPLY CHAIN PERFORMANCE

Statements	Stats	5	4	3	2	1
Improvement in quality of goods and services being acquired	F(%)	18 (30.5)	25(42.4)	10(16.9)	3(5.1)	3(5.1)
Products and services delivered and provided on time	F(%)	4 (6.8)	24(40.7)	13(22)	13(22)	5(8.5)
Services and goods obtained at proper price	F(%)	16(27.1)	23(39)	8(13.6)	9(15.3)	3(5.1)
The services and materials acquired were appropriate	F(%)	13(22)	26(44.1)	11(18.6)	7(11.9)	2(3.4)
In most cases, the supply chain unit's efficiency has been met with approval from the departments using it.	F(%)	18 (30.5)	25(42.4)	10(16.9)	3(5.1)	3(5.1)

Source: Researcher's Results

Table 2 shows that overall, 30.5% of respondents strongly agreed and 42.4% agreed that the quality of products and services purchased has improved. Products and services are delivered on time, according to a survey, with 40.7% of respondents agreeing while (22.0%) of respondents disagreed that deliveries of items and services are always made on time. Additionally, 39.0% of respondents agreed that services and goods are obtained at the proper price, with 13.6% partially agreeing. However, 5.1% of respondents did not agree. Most respondents (44.1%), based on these findings, also believed that the appropriate quantity of goods and services are acquired. Finally, 42.4% of respondents agreed that, on the whole, user departments are satisfied with the performance of the supply chain unit, with 30.5% strongly agreeing and 5.1% Strongly disagreeing.

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4.4 Inferential analysis results on Influence of supplier selection practices on supply chain performance

The hypothesis states that:

HO: Supplier selection practices has no significant effect on supply chain performance of County Referral hospitals in Kenya

TABLE 3. MODEL SUMMARY

Model	R	R^2	Adjusted R^2	Std. Error of the Estimate	Change Statistics				
					R^2 Change	F Change	df1	df2	Sig. F Change
1	.457[a]	.209	.204	.7568	.209	40.739	1	57	.000
a. Predictors: (Constant), supplier selection practices									

Source: Researcher's Results

The findings in the model summary table 3 above reveals that supplier selection practices accounts for 20.9% variation on supply chain performance of County Referral hospital in Kenya.

TABLE 4. ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	23.336	1	23.336	40.739	.001[b]
	Residual	88.214	57	.573		
	Total	111.550	58			
a. Dependent Variable: FP						
b. Predictors: (Constant), supplier selection practices						

Source: Researcher's Results

As for the ANOVA table 4 above supplier selection practices had a significant effect on supply chain performance hence the model is feasible.

TABLE 5. COEFFICIENTS[a]

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.623	.277		5.852	.001
	Supplier selection	.488	.076	.457	6.383	.001
a. Dependent Variable: Supply chain performance						

Source: Researcher's Results

In relation to the coefficient table 5, findings indicate that supplier selection practices have a positive and significant effect on the supply chain performance thus rejecting the null hypothesis. the beta coefficient for supplier selection procedures was 0.488, P=0.000. This indicates that a one percent increase in

supplier selection techniques would result in a considerable boost in supply chain performance by 48.8 percent when all other factors are maintained constant.

The results represented in the following model:

$Y = \beta 0 + \beta 1X1 + \varepsilon$ becomes:

$Y = 1.623 + 0.488$

The study rejects the null hypothesis that Supplier selection practices has no significant effect on supply chain performance of County Referral hospitals in Kenya. These results are in line with those found by Krop and Iravo (2016) who established that supplier selection significantly influenced procurement performance and supply chain effectiveness. The findings also validate those of Manyega and Okibo (2015), Obinda and Gichure (2017) and Onyango (2020) who found that supplier selection impacted on performance though the studies were done in different sectors.

5. CONCLUSION

Based on regression analysis results supplier selection practices has a positive and significant effect on the supply chain performance. The results underscore the importance of adopting supplier selection practices if supply chain performance is desired. The findings reveal that County referral hospitals utilizes technical capability criteria when selecting suppliers, employs technical expertise criteria when picking suppliers and compares suppliers. Thus for supply chain performance to be effective the study recommends for supply chain managers in county referral hospitals to take into consideration supplier evaluation, supplier certification and supplier comparison.

The study enriches literature on the effect of supplier selection practices on supply chain performance of county referral Hospitals in Kenya. The findings provide an insight to policy makers who can develop policies on supplier selection practices. Moreover, the management of county referral hospitals in Kenya can comprehensively understand the linkage between Supplier Selection Practices and supply chain performance and thus improve on their supplier selection strategies.

6. SUGGESTIONS FOR FURTHER RESEARCH

This study was confined to county referral hospitals in western region in Kenya. Further studies can be done in other hospitals and also in other institutions for instance universities and even in manufacturing firms. Studies can also be done on other supplier selection aspects such as supplier financial capability and competence. Moreover, studies may incorporate intervening variables such as government policies.

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