Effect of Pre-Contracting Procurement Practices on Supply Chain Performance of Road Authorities in Kakamega County, Kenya

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ABSTRACT

The study focused on the effect of pre-contracting procurement practices on the supply chain performance of road authorities in Kakamega County, Kenya. Implementing and adopting the procurement Contracting practices in public institutions have continuously faced challenges due to their complexity and lack of resources, which directly impact supply chain performance. Institutions are operating in a competitive business environment with many players, and massive changes are taking place daily to improve their performance. The key to optimal performance is understanding the contributions of pre-contracting procurement practices. The study covered three road authorities with regional offices in Kakamega County: Kenya National Highway Authority (KeNHA), Kenya Urban Road Authority (KURA), and Kenya Rural Roads Authority (KeRRA). The study adopted system theory. The study employed the causal research method to explain the causes and effects of the variables. The target population was 48 respondents, comprised of supply chain officers, road officers, and account officers on the road authorities. A census method was employed in the study. Structured questionnaires were used as data collection instruments. Pilot testing was conducted in Vihiga County. The data was analyzed using descriptive and inferential statistics. The data was presented using tables and figures. A Likert scale was used to determine how strongly variables agreed or disagreed with statements on a five-point scale. Regression analysis shows that pre-contracting procurement practice had no significant effect on supply chain performance in the road authorities of Kakamega County, Kenya (t = 0.605, P > 0.05). This means that road authorities in Kakamega County that effectively implement pre-contracting procurement practices are more likely to have high-performance supply chains. The findings of this objective indicated that pre-contracting had P 0.05 and contributed to 0.8% of the changes in supply chain performance. Therefore, according to the study, the institutions need to re-examine their procurement practices so as to capitalize on areas that improve supply chain performance.

Key words: Pre-Contracting Procurement Practice, Supply Chain Performance

I. INTRODUCTION

The study aims to investigate the effect of pre-qualification and selection pre-contracting procurement practices on the supply chain performance of road authorities in Kakamega. Pre-contracting procurement involves various activities such as planning, communication, need analysis, sourcing, supplier prequalification, and supplier selection. In the recent past, procurement has become a basic component in many business organizations in order to operate beyond their traditional boundaries. Procurement is a process that involves pre-contracting, contracting, and post-contracting activities. Pre-contracting is the initial stage in the procurement cycle that leads to contractual engagement.

According to Chao and Hisiao (2013), prequalification is a process where suppliers are vetted and their fitness for work is ascertained. Masiko (2013) opined that pre-contracting activity such as contractor prequalification is an important stage since it works to reduce risks in the purchasing process and foster buyer-contractor relationships. The selection of the best contractor that is compliant and has both technical and financial capability is key in the procurement process (Aseka 2010). He further indicated that pre-selection of the contractors results in positive firm performance. Doloi (2009) opined that in the prequalification of the suppliers and contractors, technical knowhow, delivery dates, commitment to deliver quality, and other qualitative features are critically examined to ensure high
performance in firms. In the prequalification process, quantitative factors such as contractor technical expertise, experience, compliance with statutory requirements, quality of supplies, and registration of the company are considered. Also, qualitative factors are checked to ensure standard supplies, such as the willingness to share important information, which is very crucial to a buying firm. Failure to set quantitative and qualitative criteria in contractor prequalification in most institutions resulted in high losses due to poor supplies, the discharge of contracts, and damaged reputations (Beil, 2009).

Supplier selection is a vital critical phase in decision-making that greatly impacts the organization in realizing its objectives (Naibor & Moronge, 2018). It is an extensive evaluation of suppliers based on their work experience, cost, reputation, machinery, financial position, supplier’s employee qualification, and legal compliance. Evaluation of this criteria’s enables us to arrive at the best choice among thousands of options. According to Aseka (2010), there is a productive outcome between the selection of contractors and performance in the supply chain. Masiko (2013) did research on the procurement practices and performance of commercial banks and indicated that the main procurement practices in banks are contractor selection and contractor relationship management.

The performance of any organization is attached to the end results of the supply chain. According to Glotidah (2017), supply chain performance encompasses three components: minimization of cost, customer satisfaction, and timeliness in delivery and services. A well-managed supply chain enhances the firm’s competitiveness, customer service, and profitability.

1.1 Objective
Effects of pre-contracting procurement practices on supply chain performance in road authorities in Kakamega County, Kenya.

1.2 Hypothesis
H₀₁: There is no significant statistical effect of pre-contracting procurement process on supply chain performance in road authorities in Kakamega County, Kenya.

II. LITERATURE REVIEW

2.1 Theoretical Review
Kumar et al. (2005) reiterated that a good research proposal should have a foundation based on theories. Theoretical reviews relate to the reasoned grounds the research is based on, and this lays a foundation between the ideologies of the theory and the ideal elements of the study questions. This study was based on systems theory. Institutions as systems consist of many units, referred to as subsystems, that are interdependent on each other. As these institutions develop and bring in more units, they become more complex, which makes coordination a vital element with each unit. The theory focuses on the interdependencies of these subsystems in an organization. The theory was proposed by Ludwig von Bertalaniffy in 1950.

The interrelationships and interdependence of the elements in the supply chain are natural. This means that when a subsystem is affected or when it’s not performing, the other elements are affected by the same measure. Based on system theory, an organization is a system where elements are arranged and interact with each other. With these interrelationships, management needs to play skillfully to strike a balance so as to optimize performance. Modern organizations face the difficulty of incorporating a specific management style into planning and decision-making (Cherotich, 2014). The system theory also advocates for a participatory relationship in supply chain planning to boost performance.

Institutions do not exist in vacuums. These organizations are dependent on the environment, both external and internal, where the external environment has a larger system (Weihrich et al., 2008). The theory depicts that the organization as a system is dependent on the environment; the organization exchanges information from the external environment and materials. Procurement as a process involves a number of parties that are interdependent. Contractors are dependent on organizations for quick payment and development through training, whereas organizations are dependent on quick deliveries of products that are of good quality and quantity, which will enhance performance. In conclusion, therefore, the theory provides a good platform for illustrating the connectedness and complex nature of supply chains.
2.2 Empirical Review

2.2.1 Pre-contracting procurement practice and Supply Chain Performance.

Contractor prequalification is a strategic activity that is performed in public institutions. A study by Glotidah (2017) indicated that contractor pre-qualification is an activity undertaken by institutions to identify and shortlist bidders who are compliant with statutory requirements, have good experience, have both financial and technical capability, and offer excellent quality services and products that are required. Pre-qualification enables an institution to optimize its returns since these activities foster competition and accountability. Costs incurred are minimized, and corruption cases that affect the institution’s reputation are eliminated when contractor pre-qualification is thoroughly conducted.

A research study on the analysis of pre-qualification criteria in contractor selection and their impacts on project success by Doloi (2009) noted that contractor ability to perform, economic status, and valuation had a great impact on project success. In addition, Doloi (2009) recommended that further studies be done to establish how contractor pre-qualification impacts organizational performance. By examining how contractor prequalification influences supply chain performance, the present research tries to fill the knowledge gap.

An investigation done by Imeri et al. (2015) “on the evaluation and selection process for contractors through an analytical framework: empirical evidence of an evaluation tool in Finland” indicated that the main criteria in contractor selection are price, delivery time, and product quality. The study focused only on three criteria: price, delivery time, and product quality. There are other vital elements that cannot be neglected in contractor pre-qualification that the researcher seeks to study: compliance, experience, and consistency in quality. A study by Alaniram (2015) on the consequences of the cost-based preference of contractors on construction project outcomes found that performance problems were directly linked to project untimeliness and failures to comply with construction standards. The study was done in Australia and employed a survey-quantitative approach. These findings created a methodological gap, which the current study sought to fill.

According to Eyaa and Oluka's (2011) study on “non-compliance in public procurement in Uganda”, the public sector should engage with other departments to train staff members about public procurement procedures in order to boost supply chain effectiveness levels. Further mentioned the importance of contractor pre-qualification in state firms. The study omitted discussing the improvement in supply chain performance caused by contractor pre-qualification.

A study by Lowasikou and Irovo (2016) on the effects of contractor selection practices on service delivery in west Pokot County Government has proven that the processes used in contractor selection and the caliber of services offered are closely related. Additionally, when hiring contractors is tainted by corruption and self-interest, the performance of the entire firm suffers. The county government’s service delivery was the study’s primary area of interest. The current study sought to unearth the expectations in the chain of supply for the public institutions in Kakamega County that impact the choice of contractors.

A study done by Kenneth and Kwasira (2017) on the influence of contractor prequalification criteria on procurement performance at Kenya Rural Roads Authority (KeRRA) in Nyamira County Findings proved that contractor selection is not well conducted in the sector and thus has the wrong individuals prequalified to perform the contracts. This negatively affected the performance levels. Poor quality supplies, delayed deliveries, a lack of technical competence, and contractual capacity were noted (Kenneth & Kwasira, 2017). Mwikali and Kavake (2012) sought to determine the elements that impact the preference of optimal suppliers in the management of procurement and found that cost is the main element that affects the selection process and performance. These studies notably gave mixed results, and the current study sought to refine those results.

Research by Naibor and Moronge (2018) was aimed at understanding how supplier choice standards influenced results in terms of performance manufacturing companies in Kenya. According to the study, contractor preapproval strongly and pleasantly affects the performance of businesses in Kenya. Three important factors—contractor financial condition, technical aptitude, and contractor culture—were the study's primary focus. A study by Olloo (2016) on the perceived influence of contractor selection considerations on the timely completion of public works projects in Kisumu County government, Kenya, indicated that selection considerations form the basis for the award of contracts to attain greater outcomes in project works. However, there are many other factors that can affect the contractor selection criteria that cannot be neglected. The current study filled the gap by examining how contractor experience, quality of supplies, and compliance can affect the supply chain performance of public institutions.
III. METHODOLOGY

A causal research design method was used in this study to explain the causes and effects of the variables. The design was appropriate and justified since it was able to establish the relationship between the current study's independent variable and dependent variable. KeNHA, KURRA, and KeRRA regional offices in Kakamega County are the road authorities the researcher employed in the study. The census technique was used in the study. According to Kothari (2004), a census entails the collection of complete information from all the participants in the population. Questionnaires were used to collect data from the target participants. Descriptive analysis was used to scrutinize the biodata. The analyzed information was shown in the form of a table and graphs. The quantitative technique was used in the study to aid in the description and explanation of the study findings. To examine the relationship between the independent (pre-contracting procurement practice) and dependent variables (supply chain performance), a simple regression model was employed.

IV. RESULTS & DISCUSSIONS

4.1 Pre-Contracting Procurement Practices

The following six statements were formulated to measure Pre-contracting and the respondents were asked to indicate the levels to which they agreed or disagreed with the statements on the questionnaires. The results were presented in the table below:

<table>
<thead>
<tr>
<th></th>
<th>5(SA)</th>
<th>4(A)</th>
<th>3(N)</th>
<th>2(D)</th>
<th>1(SD)</th>
<th>Mean</th>
<th>STD</th>
</tr>
</thead>
<tbody>
<tr>
<td>My institution prequalifies contractors regularly as required by the policy</td>
<td>32(66.7%)</td>
<td>16(33.3%)</td>
<td>0(0%)</td>
<td>0(0%)</td>
<td>0(0%)</td>
<td>4.6667</td>
<td>0.47639</td>
</tr>
<tr>
<td>Our institution has implemented contractor selection criteria</td>
<td>23(47.9%)</td>
<td>22(45.8%)</td>
<td>3(6.3%)</td>
<td>0(0%)</td>
<td>0(0%)</td>
<td>4.4167</td>
<td>0.61310</td>
</tr>
<tr>
<td>We select contractors with financial capacity to carry out the work</td>
<td>30(62.5%)</td>
<td>18(37.5%)</td>
<td>0(0%)</td>
<td>0(0%)</td>
<td>0(0%)</td>
<td>4.6250</td>
<td>0.48925</td>
</tr>
<tr>
<td>We prequalify contractors with high experience in road construction sector</td>
<td>23(47.9%)</td>
<td>21(43.8%)</td>
<td>4(8.3%)</td>
<td>0(0%)</td>
<td>0(0%)</td>
<td>4.3958</td>
<td>0.64378</td>
</tr>
<tr>
<td>My institution checks for compliance to statutory requirements in the contractor prequalification process</td>
<td>37(77.1%)</td>
<td>11(22.9%)</td>
<td>0(0%)</td>
<td>0(0%)</td>
<td>0(0%)</td>
<td>4.7708</td>
<td>0.42474</td>
</tr>
<tr>
<td>Compliance to contractor prequalification requirements affects quality of deliveries</td>
<td>20(41.7%)</td>
<td>24(50%)</td>
<td>4(8.3%)</td>
<td>0(0%)</td>
<td>0(0%)</td>
<td>4.3333</td>
<td>0.63021</td>
</tr>
</tbody>
</table>

The vast majority of respondents agreed that their institution prequalified contractors regularly as required by the policy, as indicated by a mean of 4.6667. When asked whether the institutions used contractor selection criteria, the majority of respondents agreed, with a mean of 4.4167. As to whether they selected contractors with the financial capacity to carry out the work, most of the respondents were in agreement with a mean of 4.6250. A mean of 4.3958 respondents agreed that they prequalified contractors with long experience in the road construction sector. Concerning whether their institution checked for compliance with statutory requirements in the contractor prequalification process, a huge number of the respondents agreed, as indicated by a mean of 4.7708. Likewise, a huge proportion of the study participants agreed that compliance with contractor prequalification requirements affected the quality of deliveries, as shown by a mean of 4.3333.

This concurs with the findings of Glotidah (2017), who in his study opined that pre-qualification enables institutions to optimize their returns since these activities foster competition and accountability. According to Eyaa and Oluca's (2011) study on non-compliance with public procurement in Uganda, contractor prequalification is critical to improving supply chain performance levels. The findings of the study corroborate the findings of Naibor and Moronge (2018) in their study on the influence of supplier selection on the performance of manufacturing firms in Kenya, who believed that supplier prequalification contributed significantly to performance.

However, a study by Kenneth and Kwasira (2017) on the influence of supplier prequalification criteria on procurement performance at the Kenya rural road authority in Nyamira County found that contractor selection is not well done and contracts are awarded to inexperienced, unqualified agencies. Mwikali and Kavale (2012), on the other hand, observed that at the prequalification level, cost is the major selection criteria that can influence performance.
significantly. The current study has refuted this observation since there are other factors to consider in this phase of the procurement process. For instance, reputation, experience, employee qualification, equipment's compliance, and other factors

4.2 Supply Chain Performance

The following six statements were formulated to measure supply chain performance, and the respondents were asked to indicate the level to which they agreed or disagreed with the statements on the questionnaire. The results are presented in the table below:

Table 2
Supply Chain Performance

<table>
<thead>
<tr>
<th>SCP</th>
<th>5(SA)</th>
<th>4(A)</th>
<th>3(N)</th>
<th>2(D)</th>
<th>1(SD)</th>
<th>Mean</th>
<th>STD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compliant contracting procurement practices results to efficiency and effectiveness of SCP.</td>
<td>32(62.5%)</td>
<td>14(29.2%)</td>
<td>4(8.8%)</td>
<td>0(0%)</td>
<td>0(0%)</td>
<td>4.5417</td>
<td>0.65097</td>
</tr>
<tr>
<td>Adherence to contractual policies results to effective SCP</td>
<td>17(35.4%)</td>
<td>31(64.6%)</td>
<td>0(0%)</td>
<td>0(0%)</td>
<td>0(0%)</td>
<td>4.3542</td>
<td>0.48332</td>
</tr>
<tr>
<td>The contractual activities are executed on time</td>
<td>26(54.2%)</td>
<td>22(45.8%)</td>
<td>0(0%)</td>
<td>0(0%)</td>
<td>0(0%)</td>
<td>4.5417</td>
<td>0.50353</td>
</tr>
<tr>
<td>Superior SCP as a result of well-coordinated contract management process</td>
<td>26(54.2%)</td>
<td>18(37.5%)</td>
<td>4(8.3%)</td>
<td>0(0%)</td>
<td>0(0%)</td>
<td>4.4583</td>
<td>0.65097</td>
</tr>
<tr>
<td>Contract monitoring ensure efficiency in procurement contract</td>
<td>29(60.4%)</td>
<td>7(14.6%)</td>
<td>12(25.0%)</td>
<td>0(0%)</td>
<td>0(0%)</td>
<td>4.3542</td>
<td>0.86269</td>
</tr>
<tr>
<td>Contractors’ competence affects the performance of SC</td>
<td>26(54.2%)</td>
<td>6(12.5%)</td>
<td>12(25.0%)</td>
<td>4(8.3%)</td>
<td>0(0%)</td>
<td>4.1250</td>
<td>1.06441</td>
</tr>
</tbody>
</table>

A majority of the respondents were in agreement that compliant contracting procurement practices resulted in the efficiency and effectiveness of SCP, as indicated by a mean of 4.5417. With regards to whether adherence to contractual policies resulted in an effective SCP, most of the respondents were in agreement, with a mean of 4.3542. As to whether the contractual activities were executed on time, a majority of the respondents agreed with a mean of 4.5417. A majority of the respondents agreed that superior SCP was a result of a well-coordinated contract management process, as shown by a mean of 4.4583. As to whether contract monitoring ensured efficiency in procurement contracts, a majority of the respondents were in agreement with a mean score of 4.3542. With regards to how the contractor’s competence affects the performance of SC, the majority of respondents were in agreement with a mean of 4.1250.

The study corroborates Devaraj (2007), who sought to establish the impact of eBusiness technologies on operational performance: the role of production information integration in the supply chain and opined that proper contract management in institutions enables firms to be competitive and enhance supply chain management. This agrees with Pujari (2012), who reiterated that contracting procurement practices directly affect the effectiveness of operations in organizations and ultimately supply chain performance. These findings support those of Uher and Davenport (2009), who opined that proper management of contracting activities ensures compliance with contract terms and monitoring, which leads to superior supply chain performance. Cherotich (2014) established that firms can enhance their competitiveness through effective and efficient contract management by undertaking measures such as contract monitoring and compliance with contractual policies and terms. Therefore, mutual understanding between the procuring entity and the contractors can tremendously contribute to ensuring contracts are completed on time, thus guaranteeing a smooth flow of operations in the firms.

4.3 Inferential Statistics

4.3.1 Test for Normality

The importance of the normality assumption in statistical data cannot be overlooked (Nyikuli, 2019). This is due to the fact that many statistical tests and procedures are based on distribution assumptions. Normality refers to the statistical distribution of data. In this study, the researcher used histograms. The findings are indicated in the graphs below:
The findings of the independent variable (pre-contracting) indicated the normality of responses. The distribution of the histograms shows that a majority of the responses are concentrated towards the mean, with a mean value of 3.72 and a standard deviation of 0.737. This demonstrates that the normality assumption was not violated, allowing the data to be subjected to regression analysis.

4.3.2 Regression Analysis

The regression analysis allows the researcher to explore the relationship between the dependent and independent variables. According to Sarstedt et al. (2014), regression analysis indicates the strength of the relationship, makes predictions, and indicates if the relationship exists. Simple regression analysis was used to test the percentage change in the dependent variable (supply chain performance) as attributed to the independent variable (pre-contracting). This was significant in answering the objective of the study, which was to assess the effect of pre-contracting procurement practices on supply chain performance in road authorities in Kakamega County. The regression results are shown in the table below:

<table>
<thead>
<tr>
<th>Table 3</th>
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<tr>
<td><strong>Regression Analysis</strong></td>
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<td><strong>Model Summary</strong></td>
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<td><strong>Change Statistics</strong></td>
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<td>Model</td>
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<td><strong>ANOVA</strong></td>
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<td>Model</td>
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<td>Residual</td>
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<tr>
<td>Total</td>
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<tr>
<td><strong>Coefficients</strong></td>
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<td>Model</td>
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<td></td>
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</tbody>
</table>

Figure 1
Pre-Contracting Procurement Practices

The findings of the independent variable (pre-contracting) indicated the normality of responses. The distribution of the histograms shows that a majority of the responses are concentrated towards the mean, with a mean value of 3.72 and a standard deviation of 0.737. This demonstrates that the normality assumption was not violated, allowing the data to be subjected to regression analysis.
The results indicate an R (Coefficient of correlation) of 0.089 and an $R^2$ (Coefficient of Determination) of 0.008. This implied that 0.8% of the changes in the dependent variable (Supply Chain Performance) was explained by the independent variable (Pre-Contracting). The F test gave a value of (1, 46) = 0.366, P˃0.05, which supports the goodness of fit of the model in explaining the changes in the dependent variable. The regression equation for examining trends in supply chain performance due to pre-contracting is as follows.

$$SCP = 3.800 + 0.083PC + e$$

Where:
- SCP is the Supply Chain Performance
- PC is Pre-contracting

The hypothesis of the study posted that there is no significant effect between pre-contracting procurement practices and supply chain performance on Road authorities in Kakamega County. The findings of this objective indicated that Pre-Contracting had P˃0.05 and contributed to 0.8% of the changes in Supply chain performance. Therefore, the null hypothesis is accepted as Pre-Contracting had no significant effects on supply chain performance.

V. CONCLUSIONS & RECOMMENDATIONS

5.1 Conclusion

The study found an R (Coefficient of correlation) of 0.089**, P > 0.05 at a 95.0% confidence level. This indicated a negative relationship between pre-contracting and supply chain performance in road authorities in Kakamega County. The results further indicated an $R^2$ value of 0.008, indicating that pre-contracting could predict 0.8% changes in supply chain performance. The study agrees with that of Kenneth and Kwasira (2017) on the influence of contractor prequalification criteria on procurement performance at Kenya Rural Roads Authority (KeRRA) in Nyamira County. The study established that contractor selection is not well conducted in the sector and thus has the wrong individuals prequalified to perform the contracts. This negatively affected the performance levels. A change in prequalification and selection criteria would be necessary to improve the process.

5.2 Recommendation

The study recommends re-examination of the procurement practices so as to capitalize on areas that improves supply chain performance.

REFERENCES


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