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INFLUENCE OF PROCUREMENT BEST PRACTICES ON PERFORMANCE OF NCA REGISTERED BUILDING PROJECTS IN NAIROBI CITY COUNTY, KENYA

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Abstract

Purpose: The study aimed at establishing how reverse logistics management, supply chain outsourcing, strategic collaborations, and supply chain benchmarking influence the performance of NCA registered building projects

Methodology: To achieve this, the researcher reviewed both theoretical and empirical literature and proposed the research methodology that addressed the gaps identified in the literature as well as answered the stipulated research questions. A descriptive survey design was adopted by the study. A total of 289 commercial building projects registered by National Construction Authority in Nairobi City County was the target population, as shown in NCA (2020) directory. Using Kothari (2015) sample size formula, the study got 167 commercial building projects. This study used simple random sampling to get the firms. The study preferred this method because it allowed an in-depth study of the subject. To gather data, structured questionnaires were used to collect data. Once collected, data was analyzed using descriptive and inferential statistics. Quantitative data was analysed using multiple regression analysis. The qualitative data generated was analyzed by use of the Statistical Package of Social Sciences (SPSS) version 21

Results and conclusion: The current study obtained an R2 of 64.7% and should therefore be expanded further in futhe ture in order to include other procurement best practices that may as well have a positive significance to the performance of NCA registered build projects.The findings of the study indicated that reverse logistics management, supply chain outsourcing, strategic collaborations and supply chain benchmarking have a positive relationship with performance of NCA registered building projects in Kenya.

Policy recommendation: the study recommended that institutions should embrace procurement best practices so as to improve performance and furtherresearchs should to be carried out in other institutions to find out if the same results can be obtained...

Keywords: *reverse logistics management, supply chain outsourcing, strategic collaborations and supply chain benchmarking*

1.1 Introduction

Public procurement is audited to verify whether there was an actual need for a given procurement; Procurement best practices are considered an important catalyst in the performance of company's world over. This is why the procurement best practices concept has captured the attention of all sides of commerce and industry, as well as that of academics. The large number of academic articles being published in this area is a testimony to the high level of interest in best practices issues (Analytica, 2017).

During the past decade, procurement best practices have become one of the most important organizational strategies for achieving competitive advantage. Improving the procurement best practices with which an organization can deliver its products and services is critical for competing in an expanding global market. Procurement best practices begin with the primary assumption that employees in organizations must cooperate with each other in order to achieve the needs of the customer. One can achieve this by controlling manufacturing/service processes to prevent defects (David & Robert, 2015).

The direct link of operational efficiency and particularly the supply chain, to the overall organizational performance therefore makes the adoption of best practices crucial to today's organizational success. The study of procurement best practices and how they can be effectively integrated into the organizational strategy is therefore valuable to today's business leaders (Kenneth, Lysons & Farrington, 2017).

In today's economic environment doing what you have always done even if you are to do it very well is no longer acceptable, under pressure to contain both costs and produce results despite challenging circumstances, supply managers must transform rather than simply improve your operation. That means adopting the philosophies, methods and processes that will make your organization best in class (Mann & Zhang, 2019). What makes an organization best in class will vary from each company but there are strategies that leading companies are adopting. Procurement represents a stage in evolution of civilized human relationships since it enables a desired object to be obtained by training rather than conquest, plunder or justification (Masters, 2018).

Despite the large number of articles and books on best practices, procurement best practices remain a hazy, ambiguous concept. Various teams provide companies with the structured environment necessary for successfully implementing and continuously applying the best practices process (Al-Mashari & Zairi, 2019). Best practices training are conducted and the improvement of processes executed through a well-planned team structure. The ultimate goal of the team approach is to get everyone, including contractors, designers, vendors, subcontractors, and owners involved.

1.2 Statement of the Problem

The Kenya National Bureau of Statistics (2017) estimated the Kenyan growth population at 4.2% and is expected to reach 50 million by 2020. Based on these estimates there is an annual demand of 206,000 units of buildings and the current supply is 50,000 units per year which creates a shortfall of 156,000 units every year (UNDP, 2015). Ministry of Housing, Land and Urban Development (2014) reported that 48% of construction projects in Kenya are still incomplete and 10% of these projects have completely stalled.

Failure of these construction projects has resulted in reduced supply of quality buildings as well as a less vibrant economy which consequently contributes to lower standards of living as well as increased unemployment (KIPPRA, 2017). According to Deloitte (2015), most of the collapsing building cases are in poor neighbourhoods where there is little or no inspection. The construction industry has recorded dismal performance when it comes to the underlying factors that contribute to successful completion of projects (UNDP, 2015).

Cost management in the construction industry is a major indicator of performance especially in cases where banks have financed it (Murutu, 2016). In most cases the developers invite investors to buy the units while still under construction to increase their liquidity. Poor cost management may arise due to improper financial plans made in the initial stages which may result in stalling of construction. Some of the factors that impact on performance of the industry include: experience of the project manager, enforcement and adequacy of regulations.

Kibert (2018) studied the regulation of building contractors in Kenya and challenges of enforcing the National Construction Authority mandate. Results showed that the major challenges to the effectiveness of the NCA in registering and regulating the practices of building contractors were lack of procurement best practices, poor sensitization, lack of proper organization of the NCA contractor training programs on procurement best practices and centralization of the NCA services.

Deloitte (2015) investigated the effect of competence of contractors on the construction of substandard buildings in Kenya. Results showed that procurement best practices and qualifications of contractors influenced construction of standard buildings. From these studies both global and local, no empirical research has been undertaken to reliably quantify the influence of procurement best practices on performance of NCA registered building projects. It is against this backdrop that this study intends to look at the influence of procurement best practices on performance of NCA registered building projects in Nairobi City County, Kenya.

1.3 Objectives of the Study

I. To assess the influence of reverse logistics management on performance of NCA registered building projects in Nairobi City County, Kenya.

II. To establish the influence of supply chain outsourcing on performance of NCA registered building projects in Nairobi City County, Kenya.

III. To determine the influence of strategic collaborations on performance of NCA registered building projects in Nairobi City County, Kenya.

IV. To evaluate the influence of supply chain benchmarking on performance of NCA registered building projects in Nairobi City County, Kenya

2.0 LITERATURE REVIEW

2.1 The Stakeholder Theory

According to Palevich (2017), he defined the concept of a stakeholder approach in relation to reverse logistics management to include any individual or group who can affect the firm's performance or who is affected by the achievement of the organizations' objectives. The

stakeholder theory is grouped into two: strategic stakeholder who emphasizes the active management of stakeholder interests and moral stakeholder interested in balancing stakeholder interests (Bonn & Fisher, 2018).

Corporations should not focus narrowly their procurement decisions on creating shareholder value; rather broaden their objectives to tackle the expectations and interest of a wide variety of salient stakeholders (Fullerton, 2017). Poor reverse logistics management leads to poor company's relationship with its stakeholders. Consequently, shareholders and financial institutions perceive companies with a poor environmental record as riskier to invest in and may demand a higher risk premium (Gimenez & Tachizawa, 2017).

Also companies with a poor reputation of reverse logistics management will find it harder to attract and retain highly qualified employees who may have a strong proactive environmental management (Hall, 2015). From the above argument the success of companies aiming to develop reverse logistics competencies strongly depend on the participation of their employees. Consumer awareness has led them to demand industry improvement on their environmental performance (Aguilera & Mandojana, 2016).

2.2 Procurement Best Practices

2.1.1 Reverse Logistics Management and Performance of NCA Registered Building Projects

According to Palevich (2017) the growing attention to reverse logistics (RL) is explained primarily by the need to comply with regulations on environmental protection, which in many industries imply the producer's responsibility for the sold goods, even after the sale transaction, and in particular when the products' life cycle is over.

Another explanation of the interest for RL is the concern of some companies for their image in front of the growing number of those customers who in their purchase decisions evaluate not only the product's performance, quality, or price, but also the company's respect for the environment demonstrated by environmentally friendly initiatives, such as the use of recycled raw materials in the production process, or the design of such products and packaging that ensure that waste disposal problem is not further intensified (Robert, 2019).

2.1.2 Supply Chain Outsourcing and Performance of NCA Registered Building Projects

In addition to refocusing resources onto core competencies, other strategy issues which encourage the consideration of supply chain outsourcing are restructuring, rapid organizational growth, changing technology and the need for greater flexibility to manage demand swings (Thai, 2018). Flexibility appears to be an important driver not just from a scale perspective but also regarding the scope of product or service. Organizations need to react quicker to customer requirements and supply chain outsourcing is seen as a vehicle to accomplish this (Kinyanjui, 2019).

2.1.3 Strategic Collaborations and Performance of NCA Registered Building Projects

Joiner (2017) specified that supplier partnerships influence performance of NCA registered building projects in terms of system leveraging for example through system integration, commitment to sustainable discounted prices and preferential scheduling of orders. Supplier-buyer

partnerships have today become the backbones of economic activities in the modern world and a focal point of organizational competitiveness, performance and long-term business success.

2.1.4 Supply Chain Benchmarking and Performance of NCA Registered Building Projects

According to Hooper (2019), supply chain benchmarking can enable the best practices from any industry to be creatively incorporated into the processes of the supply chain benchmarking function. Second, supply chain benchmarking breaks down the reluctance in making operational changes. In addition, supply chain benchmarking is a valuable tool for setting goals; it is something that is necessary in order to remain competitive and for learning new ideas (Jay *et al.*, 2019).

2.4 Conceptual Framework

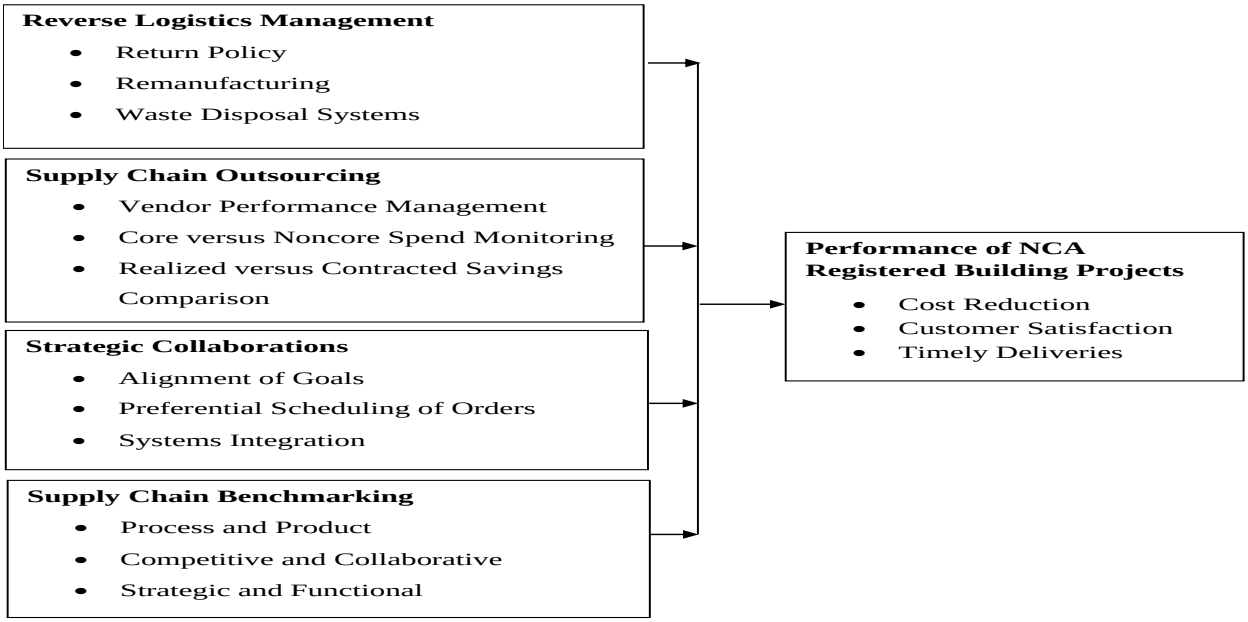

Figure 1: Conceptual Framework

3.0 METHODOLOGY

The study employed a descriptive research design, targeting heads of procurement in parastatals. To achieve this, the researcher reviewed both theoretical and empirical literature and proposed the research methodology that addressed the gaps identified in literature as well as answer the stipulated research questions. A descriptive survey design was adopted by the study. A total of 289 commercial building projects registered by National Construction Authority in Nairobi City County was the target population, as shown in NCA (2020) directory. Using Kothari (2015) sample size formula, the study got 167 commercial building projects. This study used simple random sampling to get the firms. The study preferred this method because it allowed an in-depth study of the subject. To gather data, structured questionnaires were used to collect data. Once collected,

data was analysed using descriptive and inferential statistics. Quantitative data was analysed using multiple regression analysis. The qualitative data generated was analysed by use of Statistical Package of Social Sciences (SPSS) version

The research used a multiple regression model.

$Y= \beta 0+ \beta 1X1+\beta 2X2+\beta 3X3 +\beta 4X4 + \varepsilon$

Where:

Y = Performance of NCA Registered Building Projects

$\beta 0$ = Constant

$\beta 1, \beta 2, \beta 3, \beta 4$ = Beta Coefficients

X1 = Reverse Logistics Management

X2 = Supply Chain Outsourcing

X3 = Strategic Collaborations

X4 = Supply Chain Benchmarking

ε = Error Term

4. 0 RESULTS FINDINGS

4.1 Introduction

4.2 Response Rate

A sample of respondents were interviewed using questionnaires that allowed the researcher to drop the questionnaire to the respondents and then collect them at a later date when they had filled the questionnaires. A total of 167 questionnares were distributed to heads of procurement. Out of the population covered, 104 were responsive respresenting a response rate of 62%. This was above the 50% which is considered adequate in descriptive statistics according to (Kothari, 2015).

Table 1: Response Rate of Respondents

Response	Frequency	Percentage, %
Actual Response	104	62
Non-Response	63	38
Total	167	100%

4.3 Pilot Study

The cronbach's alpha was computed in terms of the average inter-correlations among the items measuring the concepts. The rule of thumb for cronbach's alpha is that the closer the alpha is to 1

the higher the reliability (Dunn, 2019). A value of at least 0.7 is recommended. Cronbach's alpha is the most commonly used coefficient of internal consistency and stability. Consistency indicated how well the items measuring the concepts hang together as a set. Cronbach's alpha was used to measure realibilty. This was done on the four objectives of the study. The higher the coefficient, the more reliable is the test**.**

Table 2 Reliability Results

Variable	No. of Items	Respondents	α=Alpha	Comment
Reverse Logistics Management	9	17	0.893	Reliable
Supply Chain Outsourcing	9	17	0.987	Reliable
Strategic Collaborations	9	17	0.974	Reliable
Supply Chain Benchmarking	9	17	0.976	Reliable

4.4 Demographic Information

4.4.1 Distribution of Respondents by Gender

The study determined the gender distribution of the respondents. The results summarized in the figure below. The results revealed that majority of the respondent (51%) indicated that they were male, while only (49%) of the respondent indicated that they were female. The percentages may raise the issue of gender equity in institutions in this country, but that is outside the scope of this study. A study on UK companies found that women and men do not differ in their ability to perform operational tasks, but rather bring a different perspective to strategic decision making (Gianakis, 2017).

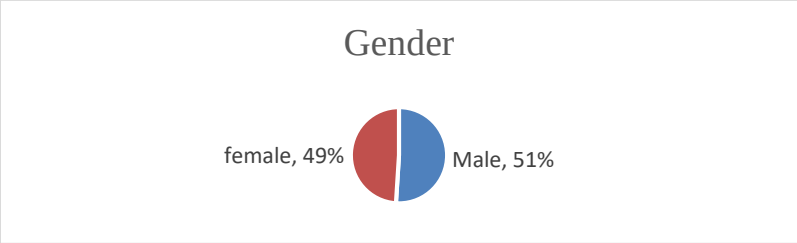

Figure 2: Distribution of Respondents by Gender

4.4.2 Distribution of Respondents by Age

The study determined the distribution of respondents by age. The results summarized in the table below. The results revealed that majority of the respondent (46.2%) were above 50 years old, (24%) were 31-40 years old, while (29.8%) were between 41-50 years. The findings are in agreement with those of Hall (2015) who established that there are two natural age peaks of the early 30s and mid 40s which correlated to employee performance**.**

Table 3: Distribution of Respondents by Age

Years	Frequency	Percent, %
31-40 Years	25	24.0
41-50 Years	31	29.8
50 Years and above	48	46.2
Total	104	100.00

4.4.3 Distribution of Respondents by Level of Education

The respondents were asked to state their highest level of education and the results revealed that majority of the respondent (51%) indicated that their academic qualification was up to master's level. The result further revealed that (49%) of the respondent indicated that their academic qualification was up to degree level. With majority responsdents having degree and above, it is expected that their level of understanding of performance of NCA registered building projects is good. This is an indication that the results obtained from respondents interviewed in the present study can be relied upon. These findings concur those of Hatry (2016) who established that majority of who manage procurement are highly educated and that there **is** evidence linking education and performance of NCA registered building projects.

Table 4: Distribution of Respondents by Level of Education

Education Level	**Frequency**	**Percent, %**
Undergraduate	**51**	**49**
Post-Graduate	**53**	**51**
Total	**104**	**100**

4.4.4 Distribution of Respondents by Length of Service

The study determined the number of years the respondents had worked in their current office. The respondents were asked to indicate their work duration. The result revealed that majority of the respondents (31.7%) indicated that their work duration was 6-8 years. The result also showed that (30.8%) of the respondent indicated that their work duration was 9 and above years above. The findings of the study are in tandem with literature review by Joiner (2017) who indicated that a duration and experience of employee helps him or her to have better knowledge and skills which contribute to performance of NCA registered building projects.

Table 5: Distribution of Respondents by Length of Service

Length of Service	Frequency	Percent, %
3-5 Years	39	37.5
6-8 Years	33	31.7
9 Years and above	32	30.8
Total	104	100.0

4.5 Descriptive Statistics

4.5.1 Reverse Logistics Management

The first objective of the study was to assess the influence of reverse logistics management on performance of NCA registered building projects in Kenya. The respondents were asked to indicate to what extent reverse logistics management had an influence on performance of NCA registered building projects in Kenya. Results indicated that majority of the respondents 27% agreed that it was to a very effective, 25% said that it was effective, 29% said it was somehow effective, while ineffective was at 19%.

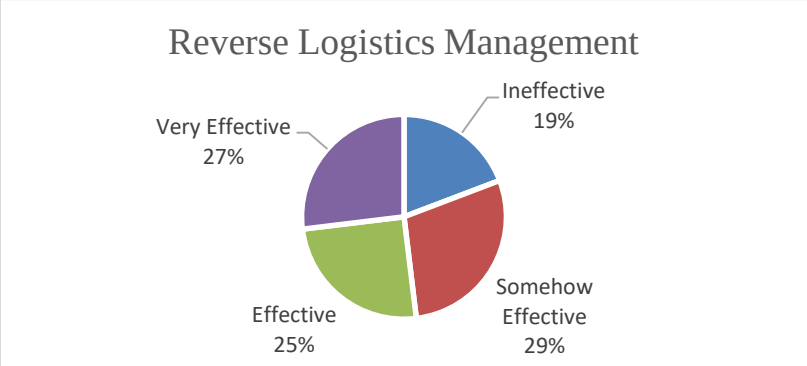

Figure: 3: Reverse Logistics Management

The respondents were also asked to comment on statements regarding reverse logistics management on performance of NCA registered building projects in Nairobi City County, Kenya. The responses were rated on a likert scale and the results presented in Table 4.6 below. It was rated on a 5 point likert scale ranging from; 1 = strongly disagree to 5 = strongly agree. The scores of 'strongly disagree' and 'disagree' have been taken to represent a statement not agreed upon, equivalent to mean score of 0 to 2.5. The score of 'neutral' has been taken to represent a statement agreed upon, equivalent to a mean score of 2.6 to 3.4. The score of 'agree' and 'strongly agree' have been taken to represent a statement highly agreed upon equivalent to a mean score of 3.5 to 5.

The respondents were asked to indicate their responses on influence of reverse logistics management on performance of NCA registered building projects in Kenya. The results revealed that majority of the respondent with a mean of (4.13) agreed with the statement that return policy plays a significant role in cost reduction. The measure of dispersion around the mean of the statements was 0.94 indicating the responses were varied. The result revealed that majority of the respondent as indicated by a mean of (4.27) agreed with the statement remanufacturing plays a significant role in cost reduction. The standard deviation for was 0.968 showing a variation. The result revealed that majority of the respondent (4.55) agreed with the statement that waste disposal systems play a significant role in cost reduction. The results were varied as shown by a standard deviation of 0.5.

The average response for the statements on return policy plays a significant role in attaining higher customer satisfaction was (4.22). The results were varied as shown by a standard deviation of 0.955. The average response for the statements on remanufacturing plays a significant role in attaining higher customer satisfaction was (4.4). The results were varied as shown by a standard deviation of 0.704. The result revealed that majority of the respondent with a mean of (4.46) agreed with the statement that waste disposal systems play a significant role in attaining higher customer satisfaction. The measure of dispersion around the mean of the statements was 0.787 indicating the responses were varied.

The result revealed that majority of the respondent as indicated by a mean of (4.44) agreed with the statement return policy plays a significant role in attaining timely deliveries. The standard deviation for was 0.786 showing a variation. The result revealed that majority of the respondent (4.21) agreed with the statement that remanufacturing plays a significant role in attaining timely deliveries. The results were varied as shown by a standard deviation of 0.942. The average response for the statements on waste disposal systems plays a significant role in attaining timely deliveries was (4.01). The results were varied as shown by a standard deviation of 0.81.

The average mean of all the statements was 4.01 indicating that majority of the respondents agreed on reverse logistics management having an influence on performance of NCA registered building projects in Kenya. However, the variations in the responses were varied as shown by a standard deviation of 0.81. These findings imply that reverse logistics management were at the heart of the organizations. The findings agree with Kinyanjui (2019) that using reverse logistics management as procurement best practice is a smart move and can reduce expenses significantly.

Table 6: Reverse Logistics Management

Statements	Mean	Std. Deviation
Return policy plays a significant role in cost reduction	4.10	0.94
Remanufacturing plays a significant role in cost reduction	4.27	0.968
Waste disposal systems plays a significant role in cost reduction	4.55	0.5
Return policy plays a significant role in attaining higher customer satisfaction	4.22	0.955
Remanufacturing plays a significant role in attaining higher customer satisfaction	4.41	0.704
Waste disposal systems plays a significant role in attaining higher customer satisfaction	4.46	0.787
Return policy plays a significant role in attaining timely deliveries	4.44	0.786
Remanufacturing plays a significant role in attaining timely deliveries	4.21	0.942
Waste disposal systems plays a significant role in attaining timely deliveries	4.11	1.096
Average	4.01	0.81

4.5.2 Supply Chain Outsourcing

The second objective of the study was to establish the influence of supply chain outsourcing on on performance of NCA registered building projects in Kenya. The respondents were asked to indicate to what extent supply chain outsourcing influenced on performance of NCA registered building projects in Kenya. Results indicated that majority of the respondents 25% agreed that it was to a very great extent, 27% said that it was to a great extent, 35% said it was moderate, while little extent and not all were at 5 and 8% respectively.

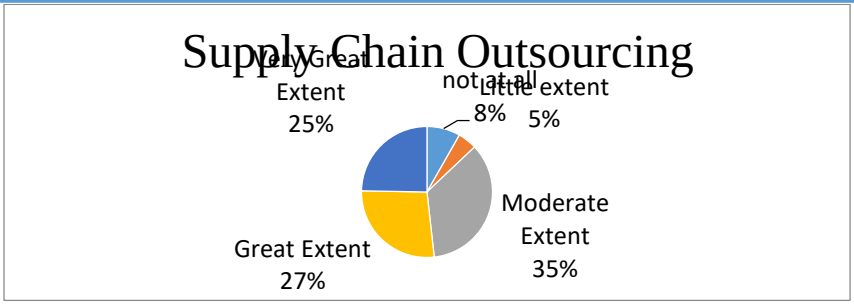

Figure 4: Supply Chain Outsourcing

The respondents were also asked to comment on statements regarding supply chain outsourcing on performance of NCA registered building projects in Kenya. The results revealed that majority of the respondent with a mean of (3.58) agreed with the statement that vendor performance management plays a significant role in cost reduction. The measure of dispersion around the mean of the statements was 1.0 indicating the responses were varied. The result revealed that majority of the respondent as indicated by a mean of (3.63) agreed with the statement core versus noncore spend monitoring plays a significant role in cost reduction. The standard deviation for was 0.9 showing a variation. The result revealed that majority of the respondent (3.6) agreed with the statement that realized versus contracted savings comparison plays a significant role in cost reduction. The results were varied as shown by a standard deviation of 0.7.

The average response for the statements on vendor performance management plays a significant role in attaining higher customer satisfaction was (3.45). The results were varied as shown by a standard deviation of 1.2. The average responses for the statements on core versus non-core spend monitoring plays a significant role in attaining higher customer satisfaction was (3.5). The results were varied as shown by a standard deviation of 1.0. The results revealed that majority of the respondent with a mean of (3.61) agreed with the statement that realized versus contracted savings comparison plays a significant role in attaining higher customer satisfaction. The measure of dispersion around the mean of the statements was 0.6 indicating the responses were varied.

The result revealed that majority of the respondent as indicated by a mean of (4.17) agreed with the statement vendor performance management plays a significant role in attaining timely deliveries. The standard deviation for was 0.8 showing a variation. The result revealed that majority of the respondent (3.63) agreed with the statement that core versus noncore spend monitoring plays a significant role in attaining timely deliveries. The results were varied as shown by a standard deviation of 0.8. The average response for the statements on realized versus contracted savings comparison plays a significant role in attaining timely deliveries was (3.66). The results were varied as shown by a standard deviation of 1.

The average mean of all the statements was 3.77 indicating that majority of the respondents agreed on supply chain outsourcing having an influence on performance of NCA registered building projects in Kenya. However, the variations in the responses were varied as shown by a standard deviation of 1.134. These findings agree with Kirungu (2017) that through supply chain outsourcing, companies can improve competitive positioning.

Table 7: Supply Chain Outsourcing

Statements	Mean	Std. Deviation
Vendor performance management plays a significant role in cost reduction	3.58	1.0
Core versus noncore spend monitoring plays a significant role in cost reduction	3.63	0.9
Realized versus contracted savings comparison plays a significant role in cost reduction	3.6	0.7
Vendor performance management plays a significant role in attaining higher customer satisfaction	3.45	1.2
Core versus noncore spend monitoring plays a significant role in attaining higher customer satisfaction	3.5	1.0
Realized versus contracted savings comparison plays a significant role in attaining higher customer satisfaction	3.61	0.6
Vendor performance management plays a significant role in attaining timely deliveries	4.17	0.8
Core versus noncore spend monitoring plays a significant role in attaining timely deliveries	3.63	0.8
Realized versus contracted savings comparison plays a significant role in attaining timely deliveries	3.66	1.0
Average	3.77	1.134

4.5.3 Strategic Collaborations

There was also need to establish influence of strategic collaborations on performance of NCA registered building projects in Kenya as the third objective. Results indicated that majority of the respondents 47% agreed that it was to a very great extent, 45% said that it was to a great extent, 2% said it was moderate; little extent was 2% and not all at 4%.

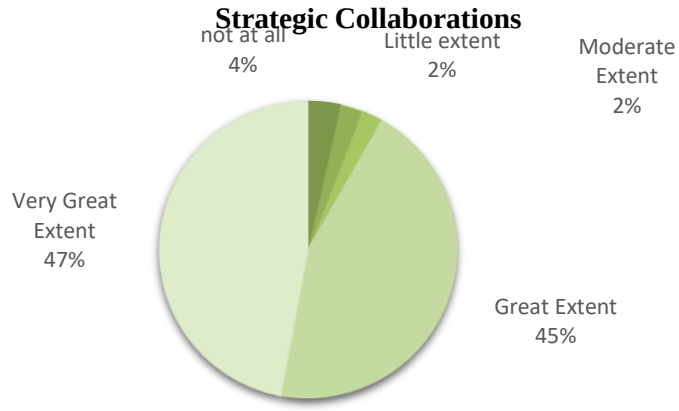

Figure 4.4: Strategic Collaborations

The respondents were asked to indicate their levels of agreement on statements regarding strategic collaborations. The results revealed that majority of the respondent with a mean of (3.8) agreed with the statement that alignment of goals play a significant role in cost reduction. The measure of dispersion around the mean of the statements was 0.9 indicating the responses were varied. The result revealed that majority of the respondent as indicated by a mean of (4.9) agreed with the statement preferential scheduling of orders play a significant role in cost reduction. The standard deviation for was 0.9 showing a variation. The result revealed that majority of the respondent (3.4) agreed with the statement that systems integration plays a significant role in cost reduction. The results were varied as shown by a standard deviation of 1.3.

The average response for the statements on alignment of goals play a significant role in attaining higher customer satisfaction was (3.6). The results were varied as shown by a standard deviation of 1.2. The average response for the statements on preferential scheduling of orders play a significant role in attaining higher customer satisfaction was (4.1). The results were varied as shown by a standard deviation 0.8. The results revealed that majority of the respondent with a mean of (4.1) agreed with systems integration plays a significant role in attaining higher customer satisfaction. The measure of dispersion around the mean of the statements was 0.9 indicating the responses were varied.

The result revealed that majority of the respondent as indicated by a mean of (4) agreed with the statement alignment of goals play a significant role in attaining timely deliveries. The standard deviation for was 1 showing a variation. The result revealed that majority of the respondent (4.2) agreed with the statement that preferential scheduling of orders play a significant role in attaining timely deliveries. The results were varied as shown by a standard deviation of 0.8. The average response for the statements on systems integration plays a significant role in attaining timely deliveries was (3.9). The results were varied as shown by a standard deviation of 0.9.

Average mean of all the statements was 3.8 indicating that majority of the respondents agreed on strategic collaborations having an influence on performance of NCA registered building projects in Kenya. However, the variations in the responses were varied as shown by a standard deviation of 0.9. The results are in tandem with Lin and Lee (2018) who opine that an organization benefits greatly when strategic collaborations are embraced in their supplier relations.

Table8: Strategic Collaborations

Statements	Mean	Std. Deviation
1. Alignment of goals play a significant role in cost reduction	3.8	0.9
2. Preferential scheduling of orders play a significant role in cost reduction	4.9	0.9
3. Systems integration plays a significant role in cost reduction	3.4	1.3
4. Alignment of goals play a significant role in attaining higher customer satisfaction	3.6	1.2
5. Preferential scheduling of orders play a significant role in attaining higher customer satisfaction	4.1	0.8
6. Systems integration plays a significant role in attaining higher customer satisfaction	4.1	0.9
7. Alignment of goals play a significant role in attaining timely deliveries	4.0	1.0
8. Preferential scheduling of orders play a significant role in attaining timely deliveries	4.2	0.8
9. Systems integration plays a significant role in attaining timely deliveries	3.9	0.9
Average	3.8	0.9

4.5.4 Supply Chain Benchmarking

There was also need to establish the influence of supply chain benchmarking on performance of NCA registered building projects in Kenya. Results also showed that 3% of respondents indicated to very great extent, great extent was at 12%, moderate extent was 37%, while little extent was at 27% and not at all was at 21%.

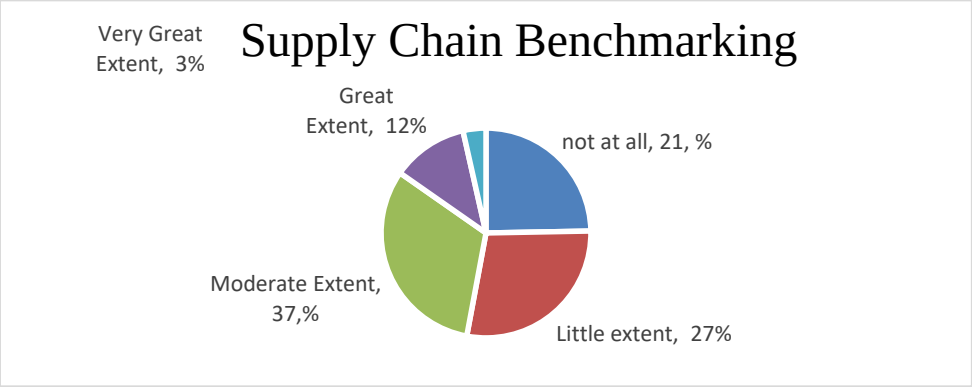

Figure 5: Supply Chain Benchmarking

The respondents were asked to indicate their views on supply chain benchmarking. The results revealed that majority of the respondent with a mean of (4.5) agreed with the statement that process and product supply chain benchmarking plays a significant role in cost reduction. The measure of dispersion around the mean of the statements was 0.5. The result revealed that majority of the respondent as indicated by a mean of (3.9) agreed with the statement competitive and collaborative supply chain benchmarking plays a significant role in cost reduction the standard deviation for was 0.8 showing a variation. The result revealed that majority of the respondent (3.2) agreed with the statement that strategic and functional supply chain benchmarking plays a significant role in cost reduction. The results were varied as shown by a standard deviation of 1.4.

The average response for the statements on process and product supply chain benchmarking plays a significant role in attaining higher customer satisfaction was (4.5). The results were varied as shown by a standard deviation of 0.5. The average response for the statements on ccompetitive and collaborative supply chain benchmarking plays a significant role in attaining higher customer satisfaction was (4.4). The results were varied as shown by a standard deviation 0.6.

The results revealed that majority of the respondent with a mean of (4.4) agreed with the statement strategic and functional supply chain benchmarking plays a significant role in attaining higher customer satisfaction. The measure of dispersion around the mean of the statements was 0.9 indicating the responses were varied.

The result revealed that majority of the respondent as indicated by a mean of (4.3) agreed with the statement process and product supply chain benchmarking plays a significant role in attaining timely deliveries. The standard deviation for was 0.7 showing a variation. The result revealed that majority of the respondent (4.5) agreed with the statement that ccompetitive and collaborative supply chain benchmarking plays a significant role in attaining timely deliveries. The results were varied as shown by a standard deviation of 1.0. The average response for the statements on strategic and functional supply chain benchmarking plays a significant role in attaining timely deliveries was (4.1). The results were varied as shown by a standard deviation of 1.0.

Average mean of all the statements was 4.2 indicating that majority of the respondents agreed on supply chain benchmarking having an influence on performance of NCA registered building projects in Kenya. However, the variations in the responses were varied as shown by a standard

deviation of 0.8. The results agree with Muge (2016) that an organization that embraces supply chain benchmarking benefits greatly in its operations.

Table 9: Supply Chain Benchmarking

Statements	Mean	Std. Deviation
Process and product supply chain benchmarking plays a significant role in cost reduction	4.5	0.5
Competitive and collaborative supply chain benchmarking plays a significant role in cost reduction	3.9	0.8
Strategic and functional supply chain benchmarking plays a significant role in cost reduction	3.2	1.4
Process and product supply chain benchmarking plays a significant role in attaining higher customer satisfaction	4.5	0.5
Competitive and collaborative supply chain benchmarking plays a significant role in attaining higher customer satisfaction	4.4	0.6
Strategic and functional supply chain benchmarking plays a significant role in attaining higher customer satisfaction	4.4	0.9
Process and product supply chain benchmarking plays a significant role in attaining timely deliveries	4.3	0.7
Competitive and collaborative supply chain benchmarking plays a significant role in attaining timely deliveries	4.2	1.0
Strategic and functional supply chain benchmarking plays a significant role in attaining timely deliveries	4.1	1.0
Average	4.2	0.8

4.6 Correlation Analysis

Correlation analysis was used to determine both the significance and degree of association of the variables and also predict the level of variation in the dependent variable caused by the independent variables. The correlation summary shown in Table 10 indicates that the associations between each of the independent variables and the dependent variable were all significant at the 95% confidence level. The correlation analysis to determine the relationship between procurement best practices

affecting on performance of NCA registered building projects in Kenya, Pearson correlation coefficient computed and tested at 5% significance level.

The results indicate that there is a positive relationship (r=.509) between reverse logistics management and performance of NCA registered building projects in Kenya. In addition, the researcher found the relationship to be statistically significant at 5% level (p=0.000, <0.05). The results also indicate that there is a positive relationship (r=.398) between supply chain outsourcing and performance of NCA registered building projects in Kenya. In addition, the researcher found the relationship to be statistically significant at 5% level (p=0.000, <0.05).

The results indicate that there is a positive relationship (r=.678) between strategic collaborations and performance of NCA registered building projects in Kenya. In addition, the researcher found the relationship to be statistically significant at 5% level (p=0.000, <0.05). The results indicate that there is a positive relationship (r=.685) between supply chain benchmarking and performance of NCA registered building projects in Kenya. In addition, the researcher found the relationship to be statistically significant at 5% level (p=0.000, <0.05). Hence, it is evident that all the independent variables could explain the changes in performance of NCA registered building projects in Kenya, on the basis of the correlation analysis.

Table 10: Summary of Pearson's Correlations

Correlations		Reverse Logistics Management	Supply Chain Outsourcing	Strategic Collaborations	Supply Chain Benchmarking	Performance of NCA Registered Building Projects
Reverse Logistics Management	Pearson Correlation	1				
	Sig. (2-Tailed)					
Supply Chain Outsourcing	Pearson Correlation	.263**	1			
	Sig. (2-Tailed)	0.007				
Strategic Collaborations	Pearson Correlation	.350**	.346**	1		
	Sig. (2-Tailed)	0	0			
Supply Chain Benchmarking	Pearson Correlation	.363**	.516**	.543**	1	
	Sig. (2-Tailed)	0	0	0		
Performance of NCA Registered Building Projects	Pearson Correlation	.509**	.398**	.678**	.685**	1
	Sig. (2-Tailed)	0	0	0	0	

**** Correlation is Significant at the 0.05 Level (2-Tailed).**

4.7 Regression Analysis

In this study multivariate regression analysis was used to determine the significance of the relationship between the dependent variable and all the independent variables pooled together. Regression analysis was conducted to find the proportion in the dependent variable (performance of NCA registered building projects in Kenya) which can be predicted from the independent variables (reverse logistics management, supply chain outsourcing, strategic collaborations, supply chain benchmarking).

Table 4.11 presents the regression coefficient of independent variables against dependent variable. The results of regression analysis revealed there is a significant positive relationship between dependent variable and the independent variable. The independent variables reported R value of .805a indicating that there is perfect relationship between dependent variable and independent variables. R square value of 0.647 means that 64.7% of the corresponding variation in performance of NCA registered building projects in Kenya can be explained or predicted by (reverse logistics management, supply chain outsourcing, strategic collaborations, supply chain benchmarking) which indicated that the model fitted the study data. The results of regression analysis revealed that there was a significant positive relationship between dependent variable and independent variable at ($\beta = 0.647$), $p=0.000 <0.05$).

Table 11: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.805[a]	.647	.633	.166295

a) **Predictors: (Constant), Reverse Logistics Management, Supply Chain Outsourcing, Strategic Collaborations, Supply Chain Benchmarking**

b) **Dependent Variable: Performance of NCA Registered Building Projects**

Table 12: ANOVA

Model		**Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**
1	**Regression**	**5.027**	**4**	**1.257**	**45.449**	**.000[b]**
	Residual	**2.738**	**99**	**0.028**		
	Total	**7.765**	**103**			

The significance value is 0.000 which is less than 0.05 thus the model is statistically significance in predicting how reverse logistics management, supply chain outsourcing, strategic collaborations, supply chain benchmarking influence performance of NCA registered building projects in Kenya. The F critical at 5% level of significance was 26.5. Since F calculated which can be noted from the ANOVA table above is 45.449 which is greater than the F critical (value= 26.5), this shows that the overall model was significant. The study therefore establishes that; reverse logistics management, supply chain outsourcing, strategic collaborations, supply chain benchmarking were all important procurement best practices influencing performance of NCA registered building projects. These results agree with Rotich (2018) results which indicated a

positive and significant influence of procurement best practices on performance of NCA registered building projects.

Table 13: Coefficients of Determination

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.353	0.202		11.619	0.000
	Supply Chain Benchmarking	0.183	0.037	0.392	4.948	0.000
	Reverse Logistics Management	0.158	0.045	0.232	3.546	0.001
	Strategic Collaborations	0.121	0.023	0.383	5.272	0.000
	Supply Chain Outsourcing	0.001	0.036	0.001	0.021	0.040

The research used a multiple regression model

$$\mathbf{Y= \beta_0+ \beta_1X_1+\beta_2X_2+\beta_3X_3+\beta_4X_4+\mathcal{E}}$$

The regression equation will be;

$$\mathbf{Y=2.353+ 0.183X_1 + 0.158X_2 + 0.121X_3 + 0.001X_4}$$

The regression equation above has established that taking all factors into account (reverse logistics management, supply chain outsourcing, strategic collaborations, and supply chain benchmarking) constant at zero, performance of NCA registered building projects in Kenya will be an index of 2.353

The findings presented also shows that taking all other independent variables at zero, a unit increase in reverse logistics management will lead to a 0.158 increase in performance of NCA registered building projects. The P-value was 0.001 which is less 0.05 and thus the relationship was significant.

The study also found that a unit increase in supply chain outsourcing will lead to a 0.001 increase in performance of NCA registered building projects. The P-value was 0.04 and thus the relationship was significant. In addition, the study found that a unit increase in strategic

collaborations will lead to a 0.121 increase in performance of NCA registered building projects. The P-value was 0.000 and thus the relationship was significant.

Lastly, the study found that supply chain benchmarking will lead to a 0.183 increase in performance of NCA registered building projects. The P-value was 0.000 and hence the relationship was significant since the p-value was lower than 0.05. The findings of the study show that, supply chain benchmarking contributed most to performance of NCA registered building projects.

5. 0 CONCLUSION AND RECOMMENDATIONS

Based on the study findings, the study concludes that performance of NCA registered building projects can be improved by reverse logistics management, supply chain outsourcing, strategic collaborations, and supply chain benchmarking. First, in regard to supply chain benchmarking, the regression coefficients of the study show that it has a significant influence of 0.183 on performance of NCA registered building projects. This implies that increasing levels of supply chain benchmarking by a unit would increase the levels of performance of NCA registered building projects by 0.183. This shows that supply chain benchmarking has a positive influence on performance of NCA registered building projects.

Second in regard to reverse logistics management, the regression coefficients of the study show that it has a significant influence of 0.158 on performance of NCA registered building projects. This implies that increasing levels of reverse logistics management by a unit would increase the levels of performance of NCA registered building projects by 0.158. This shows that reverse logistics management has a positive influence on performance of NCA registered building projects.

With regard to strategic collaborations, the regression coefficients of the study show that it has a significant influence of 0.121 on performance of NCA registered building projects. This implies that increasing levels of strategic collaborations by a unit would increase the levels of performance of NCA registered building projects by 0.121. This shows that strategic collaborations have a positive influence on performance of NCA registered building projects.

Lastly, in regard to the fourth objective, the regression coefficients of the study show that it has a significant influence of 0.001 on performance of NCA registered building projects. This implies that increasing levels of supply chain outsourcing by a unit would increase the levels of performance of NCA registered building projects by 0.001. This shows that supply chain outsourcing has a positive influence on performance of NCA registered building projects.

Drawing on this research, lack of reverse logistics management, supply chain outsourcing, strategic collaborations, and supply chain benchmarking in NCA registered building projects is leading to poor performance of NCA registered building projects. Though the NCA registered building projects are striving hard to improve their performance there are still issues of poor quality products, long lead time and high cost of projects. It was articulated that the current phenomenon of poor performance of NCA registered building projects can be reversed if the government and other stakeholders ensure reverse logistics management; supply chain outsourcing, strategic collaborations, and supply chain benchmarking are embraced in the procurement function.

The study is a milestone for further research in the field of performance of NCA registered building projects in Africa and particularly in Kenya. The findings demonstrated the important procurement best practices to the performance of NCA registered building projects to include; reverse logistics management, supply chain outsourcing, strategic collaborations, and supply chain benchmarking. The current study obtained an R^2 of 64.7% and should therefore be expanded further in future in order to include other procurement best practices that may as well have a positive significance to performance of NCA registered building projects. Existing literature indicates that as a future avenue of research, there is need to undertake similar research in other institutions in Kenya and other countries in order to establish whether the explored procurement best practices platforms herein can be generalized to influence performance of NCA registered building projects in other institutions.

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