

Supplier Development Practices and Supply Chain Performance in Manufacturing Firms in Nakuru County, Kenya

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Abstract: The purpose of this study was to establish the influence of supplier development practices on supply chain performance in manufacturing firms in Nakuru County, Kenya. The study focused on all manufacturing firms that are members of the Kenya Association of Manufacturers (KAM). The study was anchored four theories, namely; Transaction Cost Economics Theory, Resource Based View Theory, Grey System's Theory and Social Capital Theory. The study employed a descriptive survey design. The target population of the study was all 45 manufacturing firms and specifically targeted 2 senior supply chain/procurement officers. This study used questionnaires in collecting data from the target group. The researcher carried out a pilot-test with a small representative sample identical to, but not including the group in the survey. Before inferential analysis, the data tested to ascertain that the data met various assumptions of regression. The study established that supplier development [$r=.757^{**}$, $p=.000$] had a strong and positive correlation with supply chain performance. The study therefore concluded that supplier development was a strong predictor of supply chain performance in manufacturing firms. The study recommended the need for manufacturing firms to benchmark their supplier training mechanism with industry best practices and thereby align the technical capabilities of their suppliers to meet the continuously changing supply chain needs.

Keywords: Supplier Development, Supply Chain Performance

I. INTRODUCTION

1.1 Background of the Study

Since the COVID-19 outbreak, the Ukraine war, fuel crisis and economic volatility, manufacturing firms have faced problems including labor shortages, increased costs, import restrictions, tight cash flows and increased supply chain uncertainties (Jain, Girotra & Netessine, 2022). Shortages caused by demand surges and supply disruptions have prompted interests in strategies and tools for building resilient supply chains (Song, 2020). Manufacturing firms have thus been forced to deploy supply relationship management practices and strategies in order to remain competitive. According to Ergun, Hopp and Keskinocak (2023) some of the practices and strategies deployed by manufacturing firms across the globe include collaborating with supply chain partners, managing supply chain risks, development of suppliers, segmentation of suppliers, supplier evaluation, flexibility in supply chains, effective logistics processes and use appropriate technology among others. Supply chain management (SCM) involves the management and integration of a set of selected key business processes from end user through original suppliers, that provides products, services,

and information that add value for customers and other stakeholders (Peng, Zhang & Chang, 2021). According to Song (2020), the most common SCM objectives include improved demand planning, reduction of lead time, speed of delivery, control and reliability, as well as reduction of costs. When SCM is deployed efficiently and effectively, performance of supply chains would be enhanced. Supply chain performance can thus be seen as a measure of qualifying the efficiency and effectiveness of the supply chain (Inman & Green, 2022). However, in the face of uncertainties, firms not only need SCM but enhanced supply chain relationship management practices in order to survive.

Supplier relationships have become one of the main areas of interest in strategic SCM (Mwangi & Muli, 2022). The focus has moved from transactional and short-term relationships to collaborative and long-term relationships, where mutual intention is to increase flexibility and create added value through cooperation. Therefore, there has been a growing need to continuously monitor the company's position in a supply network, recognize the interactive nature of buyer-supplier relationships, and understand how to influence the atmosphere of the relationship. Furthermore, supplier relationship management has been seen from diverse perspectives which call for more studies in order to understand the various practices. For example, Sibuur (2021) opined that the elements of supplier relationship management included supplier appraisal criteria, supplier collaboration and supplier development. Wandera, Namusonge and Sakwa (2022) suggested the practices to include collaborations, strategic alliances, partnering, contracts and capability. The diversity in the elements of supplier relationship management therefore calls for more research. Amongst these practices, supplier development lends itself as one of the key practices in enhancing supply chain performance. Supplier development is the process of working with certain suppliers on a one-to-one basis to improve their performance for the benefit of the purchasing firm and it involves embracing supplier expertise and aligning it to the buying firm's business need, and, where appropriate, vice versa (Mukucha & Chari, 2021). van der Westhuizen and Ntshingila (2020) rightly pointed out that supplier development is the most influential management process for achieving product quality and customer satisfaction. To achieve this objective, organizations should put more emphasis on their ability to create and enhance its own capability in a strategically important aspect such as supplier development. Similarly, Nyaberi (2020) argued that supplier development is the process of working with certain suppliers on a one-to-one basis to improve their performance (and capabilities) for the benefit of the buying organization in its operational performance.

1.2 Statement of the Problem

Supply chains that deploy effective supplier relationship practices are better able to withstand the unpredictability that modern supply chains must contend with because of their embedded adaptability and responsiveness. These practices can help achieve a competitive advantage and thus enhanced performance in supply chains enabling faster recovery from marketplace disruptions (Grant & Holt, 2020). The potential of these practices to support competitive advantage in manufacturing firms in Kenya is essential as these firms are an important part of the economic growth. Supplier relationship practices can thus support an adaptable system that is able to maintain, function and adapt in the face of disruptions focus on maintaining an unbroken flow of requisite materials. These disruptions were critically evident during the first wave of the COVID-19 pandemic in which most supply chains failed to adapt and there were shortages in many firms (Galanakis, 2020). Recent studies (Siachitema, 2022; Mwangi & Muli, 2022; Sibuur, 2021; Ojiambo *et al.*, 2021) all assert the importance of supplier relationship management in enhancing supply chain performance. However, according to KAM (2022), the COVID-19 outbreak, the ongoing economic slowdown, the ongoing Ukrainian war and the volatility of the oil sector have impacted the manufacturing sector adversely. Furthermore, the global manufacturing sector is forecast to continue experiencing turbulences due to the worsened economic outlook, rising geopolitical risks and volatility in the energy and commodities markets (Wang & Webster, 2022). Locally, the manufacturing sector GDP contribution has been on a downward trend averaging 11.16% in 2020, 7.61 % in 2020, 7.3% in 2021 and 2.7% in 2022 (KAM, 2022). However, the continued dominance of manufacturing sector in job creation and economic growth opportunities may not be achieved if their supply chains do not deploy efficient and effective supplier relationship management practices. It can thus be suggested that the contraction in the manufacturing sector would be in some way be mitigated if manufacturing firms implemented effective supplier relationship management practices. Some of the elements of supplier relationship management include supplier appraisal criteria, collaboration, development, strategic alliances, partnering, contracts and capability (Sibuur, 2021; Wandera *et al.*, 2022). supplier development focuses on certain suppliers on a one-to-one basis to improve their performance (Nyaberi, 2020). Supplier development lends itself as one of the key practices in enhancing supply chain performance; however, there is no evidence in literature that has addressed supplier development practices and supply chain performance. The study therefore intended to fill this knowledge gap.

II. EMPIRICAL REVIEW

Studies have also attempted to link supplier development and supply chain performance with mixed findings. For example, Changalima *et al.*, (2022) investigated the relationship between supplier development and procurement performance in the Tanzanian public sector. They also examined the moderating role of contract management difficulty. Their study adopted a cross-sectional survey design and targeted 179 public procuring entities using questionnaires. Their findings revealed that supplier development positively and significantly influenced procurement performance. Furthermore, contract management difficulty negatively and significantly moderated the relationship between supplier development and procurement performance. Their study however was undertaken in Tanzania and did not focus on manufacturing firms which is the focus of the present study. Aura and Juma (2020) sought to evaluate the influence of supplier development on operational performance of selected agro-processing firms listed in the Nairobi stock exchange. Their study employed a survey research design and targeted 140 respondents using self-administered questionnaires. Their findings revealed that supplier value management development, reverse markets reward and supplier training positively and significantly influenced operational performance. The authors therefore recommended the need for managers to put emphasis supplier value management in order to maintain the positive relationship between suppliers and the firm operations. However, their study focused on agro-processing firms and was limited to supplier development which is narrower compared to the present study.

Nyaberi (2020) investigated the effect of supplier development management practices on organizational performance of manufacturing firms. The author used a descriptive research design and targeted 399 respondents from manufacturing firms using structured and semi structured questionnaires. The authors concluded that supplier development can be enhanced by supplier selection, technical capability, information exchange and supplier evaluation since the four variables contributed 65.3% of the overall performance of organizational development. The author recommended the need for manufacturing firms to embrace supplier selection, technical capability, information exchange and supplier evaluation in order to enhance supplier development. However, the author limited their approach to supplier development and did not address other relationship management practices. Bartoo, Namusonge and Makokha (2023) sought to determine the moderating effect of organization culture on the relationship between supplier development and organizational performance of food and beverage manufacturing companies in Kenya. Their study employed a descriptive survey research design and targeted 248 respondents using questionnaires. Their findings revealed that supplier development had a positive and significant influence on performance. Furthermore, the interaction between supplier development and organization culture on the performance of food manufacturing firms was significant and thus organizational culture moderated the relationship between supplier development and performance. Their study was however limited to food and beverage manufacturing firms and did not investigate other supplier relationship management practices as will be done in the present study.

III. RESEARCH METHODOLOGY

The study adopted a descriptive survey research design. The choice of this design was based on the fact that there was no attempt to alter the phenomena rather, data will be collected from respondents based on their observations and perceptions concerning the subject of interest to the study. For purposes of this study, the target population for this study were all procurement staff in the 45 manufacturing firms in Nakuru County, Kenya. Specifically, the unit of observation were 2 senior procurement/supply chain employees in the 45 manufacturing firms in Nakuru County, Kenya totaling 90 respondents. Since the target population of 90 was fairly small, the study targeted the entire population. In this study, a census design was employed as the technique was most suitable because the procurement/supply chain managers would be in position to address study objectives since they are part of the decision-making process in their supply chain department. Questionnaires were used to collect primary data from the respondents. The questionnaire consisted of closed-ended questions designed to elicit information from respondents. Before embarking on data collection, the researcher sought clearance from the university and obtained a research permit from the National Council for Science, Technology and Innovation (NACOSTI). The researcher then sought clearance from the manufacturing firms to collect data. The researcher then administered the questionnaires while assuring them that their responses from the respondents were to be kept confidential. The data collection instrument was piloted with 9 respondents (10% of sample size) who are in similar positions in manufacturing firms in Nyandarua County, Kenya. The data collected was analyzed using both descriptive and inferential statistics with the aid of the Statistical Package for Social Sciences (SPSS) software (version 23). Tables were then used to present the findings. The assumptions of linearity, homo scedasticity, normality and multicollinearity were tested before conducting regression analysis.

IV. RESEARCH FINDINGS AND DISCUSSIONS

4.1 Demographic Information

The researcher administered 90 questionnaires to all the respondents. From the administered questionnaires, a total of 73 questionnaires were returned. Of these returned questionnaires, 5 were incorrectly filled and thus were not used for further analysis. Therefore, 68 returned questionnaires were properly filled which represented an overall successful response rate of 75.6% which was deemed sufficient for further analysis. Majority of the respondents (58.8%) were male and while 41.2% were female. This implies that amongst procurement and supply chain staff in manufacturing firms are dominated by the male gender, though, the 30% constitutional gender requirement seemed to be fairly met. Further, 38.2% were between 46 and 55 years, 30.9% were between 36 and 45 years, 22.1% were above 55 years, while 8.8% were between 26 and 35 years. The findings implied that most of the manufacturing firms had employees cutting across all age cadres and thus are well placed for continuity in their functions and therefore, meet the employee requirement needs in the long run. The study also established that that 52.9% of the respondents had degree level qualification, 25% of the respondents had a master degree level qualification and 22.1% of the respondents had a diploma level qualification. Cumulatively, over 77% of the respondents had a degree and above level qualification which implied that most procurement and supply chain employees in manufacturing firms in Kenya were well qualified and were thus knowledgeable. Finally, majority of the respondents 48.5% of the respondents had over 10 years working experience, 30.9% of the respondents had between 6 and 10 years of working experience, while 20.6% of the respondents had between 2 and 5 years of working experience. Cumulatively, over 79% of the respondents had more than 6 years of working experience which implied that most procurement and supply chain employees in manufacturing firms in Kenya were relatively experienced and were thus knowledgeable in addressing the objectives of the present study.

4.2 Supplier Development Practices and Supply Chain Performance

The findings on various statements on supplier development practices and supply chain performance are shown in Table 1.

Table 1: Supplier Development Practices and Supply Chain Performance

| | SD | D | N | A | SA | Mean | StdDev |
|---|----|------|------|------|------|------|--------|
| We select suppliers based on those who meet our quality standards | 0 | 1.5 | 8.8 | 48.5 | 41.2 | 4.29 | .692 |
| Our selection ensures that only suppliers with high performance reputation are contracted | 0 | 2.9 | 13.2 | 54.4 | 29.4 | 4.10 | .736 |
| Selected suppliers are those with special capabilities that meets the technical requirement | 0 | 11.8 | 27.9 | 35.3 | 25 | 3.74 | .971 |
| We determine suppliers based on the suppliers having the right product/service information | 0 | 7.4 | 19.1 | 35.3 | 38.2 | 4.04 | .937 |
| We normally train selected suppliers on our procurement requirements | 0 | 7.4 | 30.9 | 32.4 | 29.4 | 3.84 | .940 |
| Training is done based joint problem areas developed with suppliers | 0 | 2.9 | 30.9 | 39.7 | 26.5 | 3.90 | .831 |
| Training is continuous and jointly planned towards emerging supply chain issues | 0 | 4.4 | 17.6 | 32.4 | 45.6 | 4.19 | .885 |

Source: Author (2024)

From the findings in Table 1, the respondents agreed with the statements that they selected suppliers based on those who meet their quality standards (89.7%) and that their selection ensured that only suppliers with high performance reputation were contracted (83.8%). The findings implied that manufacturing firms implemented supplier selection in their respective firms in order to identify suppliers meeting their quality standards and to ensure only suppliers meeting high performance reputation were contracted. Furthermore, the respondents agreed with the statements that selected suppliers were those with special capabilities that met the technical requirement of their manufacturing firms (60.3%) and that they determined suppliers based on the suppliers having the right product/service information (73.5%). The findings on technical capabilities of suppliers implied that manufacturing firms deliberately undertook conscious decisions on the technical capabilities of their suppliers as a mechanism of enhancing the performance of their individual supply chains.

Similarly, the respondents agreed with the statements that they normally trained selected suppliers on their procurement requirements (61.8%) and that the training was done based joint problem areas developed with suppliers (66.2%). Furthermore, the respondents agreed with the statement that training was continuous and jointly planned towards emerging supply chain issues (78%). The findings supplier training therefore implied that manufacturing firms had structured training programs aimed at empowering their supply chain partners thus enabling enhanced performance of the respective supply chains. The findings mirror those of Aura and Juma (2020) who revealed that supplier value management development, reverse markets reward and supplier training positively and significantly influenced operational performance. Similar findings were also reported by Nyaberi (2020) who concluded that supplier development can be enhanced by supplier selection, technical capability, information exchange and supplier evaluation and recommended the need for manufacturing firms to embrace supplier selection, technical capability, information exchange and supplier evaluation in order to enhance supplier development. Furthermore, the findings tallied with those of Bartoo *et al.*, (2023) who revealed that supplier development had a positive and significant influence on performance and that the elements of supplier development positively impacted firm performance.

4.3 Supply Chain Performance

The findings in this section involve the measurement of the statements on the dependent variable; supply chain performance as shown in Table 2.

Table 2: Supply Chain Performance

| | SD | D | N | A | SA | Mean | StdDev |
|--|-----|-----|------|------|------|------|--------|
| Our local market access and share has steadily grown in the past few years | 1.5 | 0 | 10.3 | 54.4 | 33.8 | 4.19 | .738 |
| Our firm’s export market has expanded and grown steadily in the past few years | 1.5 | 2.9 | 14.7 | 58.8 | 22.1 | 3.97 | .791 |
| We have managed to reduce inefficiencies in our entire supply chain | 0 | 5.9 | 22.1 | 48.5 | 23.5 | 3.90 | .831 |
| Our supply chain has developed and implemented efficient standards in its processes | 1.5 | 5.9 | 22.1 | 47.1 | 23.5 | 3.85 | .902 |
| Our products reach our customers based on agreed delivery timelines | 2.9 | 1.5 | 22.1 | 33.8 | 39.7 | 4.06 | .976 |
| We have a flexible time framework with our supply chain partners that has enabled favorable lead times | 1.5 | 7.4 | 19.1 | 42.6 | 29.4 | 3.91 | .958 |
| Our firm has managed to consistently keep supply chain costs at a minimum | 0 | 4.4 | 19.1 | 38.2 | 38.2 | 4.10 | .866 |

Source: Author (2024)

From the findings in Table 2, the respondents agreed with the statements that their local market access and share had steadily grown in the past few years (88.2%) and that their manufacturing firm’s export market had expanded and grown steadily in the past few years (80.9%). The findings implied that manufacturing firms had experienced growth in their market access and in the expansion of their export market. Furthermore, the respondents agreed with the statements that manufacturing firm had managed to reduce inefficiencies in their entire supply chain (72%) and that their supply chain had developed and implemented efficient standards in its processes (70.6%). The findings implied that manufacturing firms have managed to increase their operational efficiencies and also managed to implement efficient process standards in their operations. Similarly, the respondents agreed with the statements that their products reached their customers based on agreed delivery timelines (73.5%) and that manufacturing firms had a flexible time framework with their supply chain partners that had enabled favorable lead times (72%). The findings on lead time and flexibility of timelines implied that manufacturing firms had successful arrangements on managing lead times with their supply chain partners and also had flexible modes of operation when it comes to time challenges facing their manufacturing firms supply chains. Furthermore, the respondents agreed with the statement that their manufacturing firm had managed to consistently keep supply chain costs at a minimum (76.4%). This findings in particular implied that manufacturing firms had clear focus on managing supply chain costs so as to ensure enhanced overall performance of the supply chain. Finally, the respondents agreed with the statements that their manufacturing firm’s supply chain had a strong focus on customer satisfaction (69.1%). The findings on focus on customer satisfaction implied that manufacturing firms had favorably assessed themselves as having met their customer needs.

4.4 Regression Analysis

Regression analysis is used to estimate the average relationship between a dependent variable and one or more predictor variables and it provides a mechanism of establishing the parameter estimates. Since the collected data met all the regression assumptions, regression analysis was undertaken and the model summary results are presented in Table 3.

Table 3: Model Summary

| R | R Square | Adjusted R Square | Std. Error of the Estimate |
|-------------------|----------|-------------------|----------------------------|
| .757 ^a | .574 | .567 | .37536 |

Source: Author (2024)

From Table 3, indicated that supplier development [$r=.757^{**}$, $p=.000$] had a strong and positive correlation with supply chain performance in manufacturing firms in Nakuru County, Kenya. This finding implies that an increase in the level of supplier development deployed by manufacturing firms would lead to a significant increase in the level of supply chain performance. The findings agree with those of Nyaberi (2020) who revealed that supplier development through supplier selection, technical capability, information exchange and supplier evaluation significantly influenced the overall performance of the organization. The findings also agree with those of Bartoo, Namusonge and Makokha (2023) who revealed that supplier development had a positive and significant influence on performance in an environment moderated by organizational culture. The R-square of 0.574 implied that supplier development practices explained 57.4% of variation in supply chain performance. Therefore, other factors not investigated in the present study explained 42.6% of variation in supply chain performance. The ANOVA findings were as shown in Table 4.

Table 4: ANOVA

| | Sum of Squares | df | Mean Square | F | Sig. |
|------------|----------------|----|-------------|--------|-------------------|
| Regression | 12.513 | 1 | 12.513 | 88.814 | .000 ^b |
| Residual | 9.299 | 66 | .141 | | |
| Total | 21.812 | 67 | | | |

Source: Author (2024)

Furthermore, from the findings in Table 4, the overall model was found to be statistically significant ($F = 88.814$, $p=.000$). The finding on the overall model thus implied that the fitted model can be used to estimate the relationship between supplier development practices and supply chain performance. The regression coefficients were as shown in Table 5.

Table 5: Regression Coefficients

| | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|----------------------|-----------------------------|------------|---------------------------|-------|------|
| | B | Std. Error | Beta | | |
| (Constant) | .694 | .354 | | 1.962 | .054 |
| Supplier Development | .823 | .087 | .757 | 9.424 | .000 |

Source: Author (2024)

From the fitted model, the study established the following regression function:

$$Supply\ Chain\ Performance = 0.694 + 0.823Supplier\ Development\ Practices$$

From the model, it can be seen that holding supplier development practices constant, supply chain performance would increase by a factor of 0.694 and a unit increase in supplier development practices would cause an increase in supply chain performance by a factor of 0.823. From the findings of the linear regression analysis, supplier development practices ($t = 9.424$, $p=.000<.05$], the null hypothesis was rejected and the study concluded supplier development practices have a significant influence on supply chain performance. The findings tally with those of The findings agree with those of Nyaberi (2020) who revealed that supplier development through supplier selection, technical capability, information exchange and supplier evaluation significantly influenced the overall performance.

V. CONCLUSIONS AND RECOMMENDATIONS

The study concluded that manufacturing firms selected suppliers based on those who meet their quality standards and that their selection ensured that only suppliers with high performance reputation were contracted. Furthermore, the study concluded that selected suppliers were those with special capabilities that met their technical requirements and that manufacturing firms determined suppliers based on the suppliers having the right product/service information. The study also concluded that manufacturing firms normally trained selected suppliers on their procurement requirements and that the training was done based joint problem areas developed with suppliers. Furthermore, the study concluded that training was continuous and jointly planned towards emerging supply chain issues. From the correlation analysis, the study concluded that supplier development had a strong and positive correlation with supply chain performance in manufacturing firms in Nakuru County, Kenya. Similarly, from the regression analysis, it was concluded that supplier development had a statistically significant influence on supply chain performance in manufacturing firms in Nakuru County, Kenya. The study recommends the need for manufacturing firms to further explore supplier training mechanisms that not only should be well structured, documented and known but also those which are time-bound and encourage growth of suppliers. The study also recommends the need for manufacturing firms to benchmark their supplier training mechanism with industry best practices and thereby align the technical capabilities of their suppliers to meet the continuously changing supply chain needs. Finally, the study recommends the need for manufacturing firms to continuously encourage the use of supplier selection teams and the establishment of on-supplier selection teams which could be cross-cutting across various departments and expertise and thus enable easier, quicker and supply chain focused supplier development process.

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