

# AN EMPIRICAL INVESTIGATION OF HOW STRATEGIC PURCHASING ENHANCES EFFECTIVE BUYER-SUPPLIER RELATIONSHIP AND OPERATIONAL PERFORMANCE: A STUDY OF OIL AND GAS FIRMS OPERATING IN NIGERIA

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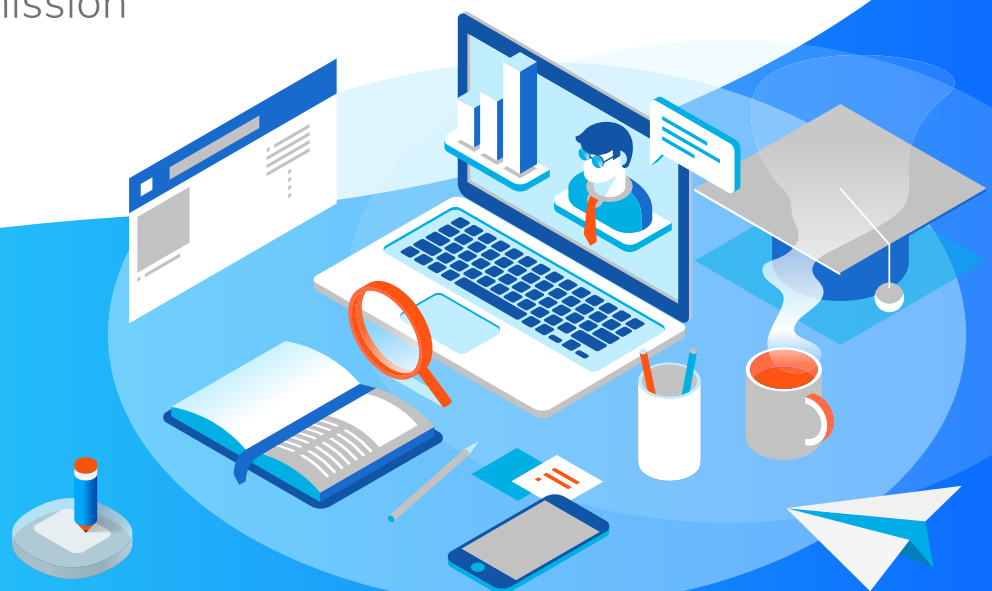
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# CHAPTER 4: RESULTS

## Introduction

This chapter presents the findings of the survey conducted with the supply chain professionals in the oil and gas firms in Nigeria. The findings focus on the relationships between the variables of interest, which is the impact of the strategic purchasing on the buyer-supplier relationships and the operational performance of the supply chain.

### 4.1 Participants' Characteristics

**Table 4.1.1:** Participants' age characteristics

		<i>n</i> (%)
Age	18-25	4 (3%)
	25-34	14 (11%)
	35-44	16 (12%)
	45-54	47 (36%)
	55-64	43 (33%)
	65 and above	6 (5%)
	<b>Total</b>	<b>130 (100%)</b>

**Table 4.1.2:** Participants' gender characteristics

		<i>n</i> (%)
Gender	Male	77 (59%)
	Female	53 (41%)
	<b>Total</b>	<b>130 (100%)</b>

**Table 4.1.3:** Participants' management level characteristics

		<i>n</i> (%)
Management Level	Executive	18 (14%)
	Middle Level	60 (46%)
	Senior Staff	52 (40%)
	<b>Total</b>	<b>130 (100%)</b>

**Table 4.1.4:** Frequency table for participants' experience in supply chain practice

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	1	.8	.8	.8
	2	2	1.5	1.5	2.3
	3	1	.8	.8	3.1
	4	10	7.7	7.7	10.8
	5	17	13.1	13.1	23.8
	6	3	2.3	2.3	26.2
	8	1	.8	.8	26.9
	9	4	3.1	3.1	30.0
	10	11	8.5	8.5	38.5
	12	12	9.2	9.2	47.7
	13	2	1.5	1.5	49.2
	14	17	13.1	13.1	62.3
	15	12	9.2	9.2	71.5
	17	2	1.5	1.5	73.1
	18	1	.8	.8	73.8
19	1	.8	.8	74.6	

Valid	20	13	10.0	10.0	84.6
	21	4	3.1	3.1	87.7
	22	1	.8	.8	88.5
	23	2	1.5	1.5	90.0
	24	2	1.5	1.5	91.5
	25	9	6.9	6.9	98.5
	30	2	1.5	1.5	100.0
	<b>Total</b>	<b>130</b>	<b>100.0</b>	<b>100.0</b>	

**Table 4.1.5:** Descriptive statistics for participants' experience in supply chain practice

N	Valid	130
	Missing	0
Mean		13.15
Std. Deviation		6.919
Minimum		1
Maximum		30

## 4.2 Strategic Purchasing Measures

Participants were asked to rate their firms based on the features associated with strategic purchasing, which included supplier base flexibility, supplier integration, and formal socialization process. The findings of the survey regarding these strategic purchasing concepts are presented in the following subsections.

### 4.2.1 SUPPLIER BASE FLEXIBILITY

Table 4.2.1 below summarizes the findings of the survey with respect to supply base flexibility. The results of the survey show that majority of the supply chain professionals surveyed (40%,  $n = 52$ ) indicated that their firms had very few suppliers, 25% ( $n = 32$ ) showed that their firms had few suppliers, 15% ( $n = 19$ ) showed that their companies had a moderate number of suppliers, 12% ( $n = 15$ ) reported that their firms had many suppliers, whereas 9% ( $n = 12$ ) indicated that their companies had very many suppliers. These results suggest that majority of oil and gas companies in Nigeria rely on few suppliers (lean supply base), which means that they have a high level of supplier base flexibility.

**Table 4.2.1: Supply Base Flexibility**

		<i>n</i> (%)
Supplier Base Flexibility	Very Few	52 (40%)
	Few	32 (25%)
	Moderate	19 (15%)
	Many	15 (12%)
	Very Many	12 (9%)
	<b>Total</b>	<b>130 (100%)</b>

## 4.2.2 SUPPLIER INTEGRATION

Table 4.2.2 below summarizes the results of the survey concerning the extent of supplier integration in the oil and gas companies operating in Nigeria. The findings indicate that the majority of the supply chain professionals surveyed (44%,  $n = 57$ ) stated that their firms have “very high” level of supplier integration, 25% of the participants ( $n = 32$ ) stated that the level of supplier integration is

“high” in their firms, 14% ( $n= 18$ ) reported “moderate” supplier integration, 11% ( $n= 14$ ) indicated “low” supplier integration, whereas 7% ( $n=9$ ) reported a “very low” supplier integration. In sum, the results suggest that the level of supplier integration in Nigerian oil and gas firms is high.

**Table 4.2.2:** Supplier integration in Nigerian oil and gas companies

		<i>n</i> (%)
Supplier Integration	Very Low	9 (7%)
	Low	14 (11%)
	Moderate	18 (14%)
	High	32 (25%)
	Very High	57 (44%)
	<b>Total</b>	<b>130 (100%)</b>

### 4.2.3 FORMAL SOCIALIZATION PROCESS

The results of the survey concerning the formal socialization process in the Nigeria oil and gas companies’ supply chain is summarized in Table 4.2.3 below. From the findings, it is evident that majority of the supply chain professionals surveyed (33%,  $n= 43$ ) reported a “high” level of formal socialization process within their supply chains, 31% ( $n = 40$ ) indicated “very high” formal socialization process, 15% ( $n= 20$ ) reported “moderate” formal socialization process, 6% ( $n= 8$ ) stated “low” formal socialization process, whereas 15% ( $n= 19$ ) reported “very low” formal socialization process. These results suggest that oil and gas firms in Nigeria have high levels of formal socialization process within their supply chains.

**Table 4.2.3: Formal socialization process**

		<i>n</i> (%)
Formal Socialization Process	Very Low	19 (15%)
	Low	8 (6%)
	Moderate	20 (15%)
	High	43 (33%)
	Very High	40 (31%)
	<b>Total</b>	<b>130 (100%)</b>

#### **4.2.4 OVERALL STRATEGIC PURCHASING PRACTICE**

The measures of supply base flexibility, supplier integration, and formal socialization process were summed in order to create an overall measure of strategic purchasing practice in Nigerian firms – a subscale for strategic purchasing. It is imperative to note that the supply base flexibility item was reverse scored because of the negative wording of the question, which means that the scale runs in the opposite direction. In other words, many suppliers would mean low flexibility whereas very few suppliers would mean high flexibility. The sum of the strategic purchasing items revealed that the oil and gas firms in Nigeria reported  $M = 11.10$ ,  $SD = 3.232$ . The Table 4.2.4 below shows the descriptive statistics for the sum of the strategic purchasing items in the questionnaire.

**Table 4.2.4: Descriptive statistics for the strategic purchasing subscale**

	<b>N</b>	<b>Minimum</b>	<b>Maximum</b>	<b>Mean</b>	<b>Std. Deviation</b>
Sum of Strategic Purchasing Items	130	3	15	11.10	3.232
Valid N (list wise)	130				

## 4.3 Buyer Supplier Relationship Measures

Participants were requested to rate a number of characteristics associated with their relationships to their suppliers, which included cooperation, communication, trust, interpersonal relationship, and power dependence. The findings of the survey regarding the buyer supplier relationship items are presented in the subsections that follow.

### 4.3.1 COOPERATION

With regard to cooperation, majority of the supply chain professionals surveyed (39%,  $n= 51$ ) indicated “moderate” cooperation between their firms and their suppliers, 27% ( $n= 35$ ) stated “moderate” cooperation, 15% ( $n=20$ ) reported “low” cooperation, 12% ( $n= 16$ ) indicated “very high” cooperation, whereas 6% ( $n= 8$ ) reported “very low” cooperation with their suppliers. These survey findings suggest that the level of cooperation between oil and gas companies and their suppliers is moderate. Table 43.1 below summarizes these findings.

**Table 4.3.1: Cooperation between buyers and suppliers**

		<i>n</i> (%)
Cooperation	Very Low	8 (6%)
	Low	20 (15%)
	Moderate	35 (27%)
	High	51 (39%)
	Very High	16 (12%)
	<b>Total</b>	<b>130 (100%)</b>



### 4.3.2 COMMUNICATION

In terms of communication, majority of the supply chain professionals who participated in the survey (40%,  $n= 52$ ) maintained that “good” communication exists between their companies and their suppliers, 28% ( $n= 37$ ) considered the communication “very good,” 18% ( $n= 23$ ) perceived communication with their suppliers as “average,” 11% ( $n= 14$ ) stated that communication with their suppliers is “poor,” while 3% ( $n= 4$ ) were of the view the communication with their suppliers is very poor. These results seem to suggest that buyer-supplier communication among Nigerian oil and gas companies is good. Table 4.3.2 below summarizes the responses of participants in terms of buyer-supplier communication.

**Table 4.3.2: Buyer supplier communication**

		<i>n</i> (%)
Communication	Very Poor	4 (3%)
	Poor	14 (11%)
	Moderate	23 (18%)
	Good	52 (40%)
	Very Good	37 (28%)
	<b>Total</b>	<b>130 (100%)</b>

### 4.3.3 TRUST

Concerning trust, majority of the participants who took part in the survey (41%,  $n=53$ ) stated that a “high” level of trust exist between their respective firms and their suppliers, 28% ( $n= 36$ ) reported a “very high” level of buyer-supplier trust, 15% ( $n= 20$ ) indicated a “moderate” level of trust with their suppliers, 12% ( $n=15$ ) reported

that a “low” level of buyer supplier trust, whereas 5% ( $n= 6$ ) indicated a “very low” level of trust between their firms and their suppliers. These findings appear to suggest that a high level of buyer-supplier trust exist in the supply chain oil and gas companies operating in Nigeria. Table 4.3.3 below is a summary of the responses provided by participants regarding the trust dimension of the buyer-supplier relationship.

**Table 4.3.3: Buyer-supplier trust**

		<i>n</i> (%)
Trust	Very Low	6 (5%)
	Low	15 (12%)
	Moderate	20 (15%)
	High	53 (41%)
	Very High	36 (28%)
	<b>Total</b>	<b>130 (100%)</b>

#### 4.3.4 INTERPERSONAL RELATIONSHIP

Participants were requested to rate the extent to which personal relations influence the business relationships with their suppliers. The results of the study showed that majority of the participants (47%,  $n= 31$ ) stated that the influence of interpersonal relations on the relationship with suppliers is “very high,” 21% ( $n= 27$ ) stated that the influence of interpersonal relations is “high,” 12% ( $n= 15$ ) reported a “moderate” influence, 13% ( $n=17$ ) documented a “low” influence, whereas 8% ( $n= 10$ ) stated that the influence of interpersonal relations on their relationship to their suppliers is “very low.” From these findings, it is evident that interpersonal relations is an important

feature of buyer-supplier relationship in the oil and gas sector in Nigeria.

**Table 4.3.4: Interpersonal Relationship**

		Count
Interpersonal Relationships	Very Low	10 (8%)
	Low	17 (13%)
	Moderate	15 (12%)
	High	27 (21%)
	Very High	61 (47%)
	<b>Total</b>	<b>130 (100%)</b>

### 4.3.5 POWER DEPENDENCE

Supply chain professionals were requested to rate the level of influence that their suppliers have on them. The findings indicate that majority of those surveyed (45%,  $n= 59$ ) stated that the influence/power of their suppliers on them is “very low,” 22% ( $n= 29$ ) reported that their suppliers have “low” influence on them, 14% ( $n= 18$ ) pointed out a “moderate” influence, 4% ( $n= 5$ ) reported a “very high” influence while 15% ( $n= 19$ ) indicated a “very high” influence. From these results, it is evident that suppliers in the Nigerian oil and gas industry have low power/influence over their buyers. These findings are summarized in the Table 4.3.5 below.

**Table 4.3.5: Power dependence**

		<b><i>n</i> (%)</b>
<b>Power Dependence</b>	Very Low	59 (45%)
	Low	29 (22%)
	Moderate	18 (14%)
	High	5 (4%)
	Very High	19 (15%)
	<b>Total</b>	<b>130 (100%)</b>

### **4.3.6 OVERALL BUYER-SUPPLIER RELATIONSHIP**

The items of cooperation, trust, interpersonal relationship, communication and power dependence were summed to create an overall measure of buyer-supplier relationship subscale. The power dependence item was reverse scored because a very low power dependence denote a positive outcome for the buyer supplier relationship whereas a high level of power dependence denotes a negative outcome for the relationship, which means that the scale runs in an opposite direction. The sum of the items under the buyer-supplier relationship subscale showed mean  $M = 18.54$ ,  $SD = 4.39$  ( $N = 130$ ). The descriptive statistics for this variable are shown in the Table 4.3.6.

**Table 4.3.6: Descriptive statistics for the buyer-supplier relationship subscale**

	<b>N</b>	<b>Minimum</b>	<b>Maximum</b>	<b>Mean</b>	<b>Std. Deviation</b>
Overall Buyer Supplier Relationship	130	7	25	18.54	4.390
Valid N (list wise)	130				

## 4.4 Operational Performance of the Supply Chain

Participants were asked to rate the operational performance of their supply chains. Majority of the supply chain professionals surveyed (46%,  $n= 59$ ) considered the operational performance of their firm's supply chain to be "very high," 26% ( $n= 33$ ) reported "high" performance of their supply chain, 13% ( $n= 17$ ) documented "moderate" performance, 12% ( $n= 15$ ) reported "low" performance, while 4% ( $n= 5$ ) indicated "very low" operational performance of their companies' supply chains. These findings are presented in Table 4.4 below.

**Table 4.4:** Operational performance of supply chain

		<i>n</i> (%)
Operational Performance of Supply Chain	Very Low	5 (4%)
	Low	15 (12%)
	Moderate	17 (13%)
	High	33 (26%)
	Very High	59 (46%)
	<b>Total</b>	<b>130 (100%)</b>

## 4.5 Correlations between Variables

Table 4.5 below shows correlations between the variables in this study. From the table, positive correlations exist between supplier integration and formal socialization process, supplier integration and supplier base flexibility, supplier integration and cooperation, supplier

integration and communication, supplier integration and trust, supplier integration and interpersonal relationships, supplier integration and power dependence, and supplier integration and overall buyer supplier relationship. Supplier integration is also positively correlated to the overall operational performance of the supply chain. Other positive correlations exist between supply base flexibility and formal socialization process, cooperation and formal socialization process, communication and supply base flexibility, communication and cooperation. Other notable correlations are indicated in Table 4.5.

	A	B	C	D	E	F	G	H	I	J	K
<b>A.</b> SupplierIntegration	1										
<b>B.</b> Formal Socialization Process	.371**	1									
<b>C.</b> Supply Base Flexibility Reversed	.489**	.353**	1								
<b>D.</b> Sum of Strategic Purchasing Items	.781**	.735**	.812*	1							
<b>E.</b> Cooperation	.202*	.227**	.514*	.417**	1						
<b>F.</b> Communication	.511**	.422**	.304*	.523**	.245**	1					
<b>G.</b> Trust	.206*	.151	.170	.225*	.222*	.464**	1				
<b>H.</b> Interpersonal Relationships	.267**	-.001	.200*	.198*	.287**	.414**	.437**	1			
<b>I.</b> Power Dependence Reversed	.340**	-.010	.225*	.235**	.262**	.336**	.378**	.753*	1		
<b>J.</b> Overall Buyer Supplier Relationship	.423**	.193*	.381*	.427**	.538**	.662**	.684**	.843*	.811**	1	
<b>K.</b> Operational Performance of Supply Chain	.214*	-.135	.021	.037	.353**	.199*	.253**	.566*	.667**	.598**	1

**\*\*.** Correlation is significant at the 0.01).

**\*.** Correlation is significant at the 0.05 level (2-tailed).



## 4.6 Chapter Summary

The findings of this survey have been presented in this chapter including the characteristics of participants, and significant correlations between the variables of interest. Notable findings in this chapter include the positive correlation that exists between strategic purchasing and overall buyer supplier relationship. A positive correlation has also been found between strategic purchasing and the operational performance of supply chain. The following chapter performs a discussion of the study findings with regard to the research questions and hypotheses.