



Relationship integration: recipe for marketing performance in downstream petroleum sector in Nigeria

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Abstract

This study investigated the nexus between relationship integration, product availability and customer satisfaction of downstream petroleum sector in Nigeria. The study population was 930, deduced from seven petroleum major oil marketing companies, with a sample size of 280 top management staff responded to the questionnaire and partial least square-structural equation modeling was used for data analysis. This study revealed that relationship integration positively and significantly relates to product availability and customer satisfaction of downstream petroleum sectors. It concluded that relationship integration is a salient factor to enhance marketing performance. This study recommended that management of petroleum major oil marketers should ensure greater interaction, cooperation and collaboration with agencies and supplier units to ensure product availability, customer satisfaction and to reduce supplier lead time.

Keywords: Relationship integration, marketing performance, product availability, customer satisfaction.

Introduction

Oil and gas industry in Nigeria is the livewire of the nation's economy. About 80% of the Gross Domestic Products are derived from the industry (Lukeman, 2003). Scholars of petroleum industry described it as the mainstay of the nation's economy, or the oxygen that sustain the economy wellbeing of the country (Atakpu, 2007; Odulan, 2003; Augusto, 2002). There are three streams of the oil and gas industry; upstream, midstream and downstream sector. These streams have divergent functions though work hand in hand for effective service delivery. The upstream is saddle with the responsible of mining, exploration, production and exportation. The midstream is concerned

with processing, storage, marketing and transportation of unrefined crude. While the downstream focus on refining, distribution and marketing of finished petroleum products to the dispensing units for customer consumption (Ogbeifun, 2009; Adewumi & Adenugba, 2010, Jekey, Ezirim & Amue 2019). This paper is domiciled in the downstream sector of the oil and gas industry in Nigeria. There are four existing refineries in Nigeria; two in Port Harcourt (PHRC) with installed capacity of 210,000 barrel per day (bpd), one in Warri, Delta State (WRPC) with 125,000 bpd, as well as Kaduna (KRPC) with 110,000 bpd given a total installed capacity to 445,000bpd (Jekey, Ezirim & Amue 2021; Frynas, 1999). Looking at the chain of activities in the streams of



petroleum sector and its participating partners, we therefore define supply chain integration as the synergy between an organisation and their trading partners to achieve business objectives through integrated business process and information sharing (Jekey, et al, 2021; Flynn, Huo & Zhao, 2010).

Relationship among channel members in the distribution of petroleum products, such as premium motor spirit (PMS), automotive gas oil (AGO) and domestic pure kerosene (DPK), to effectuate marketing performance is the focal point in this paper. However, conflicts among channel members are capable of affecting smooth distribution by way of hoarding, product diversion, smuggling, leading to products shortages and scarcity and other unethical marketing practices are the challenges bedevilling effective marketing performance in downstream petroleum sector. Given these uncertainties, this paper focused on how relationship integration serves as a recipe for effective marketing performance in downstream petroleum sector in south-south Nigeria. Hence, two research questions were raised in this paper. Thus, to find out how relationship integration significantly impacts on product availability, as well as how relationship integration positively, and significantly influences customer satisfaction in the downstream petroleum sector. Furthermore, this paper scholarly looked at supply chain integration from where relationship integration emerges and marketing performance which accommodated product availability and customer satisfaction.

2. Review of Relevant Literature

2.1 Supply chain integration and marketing performance

Several researches have been carried out in supply chain integration and its

relationship with marketing performance in the recent time. The widespread attention given to Supply Chain Integration (SCI) in Supply Chain (SC) Literature in relations to its relevance to business performance has been quite enormous (Gimenez, Vander Vaart & Van Donk, 2012; Schwenherr & Swink, 2012; Zhang & Huo, 2013). Therefore, we proceed to find out the relationship between supply chain integration and marketing performance (MP) in a competitive market environment. It is expedient to note that supply chain integration is a strategic tool which attempts to minimize the operating costs and thereby enhancing values for the stakeholders by linking all participants in the system (Kwon & Suh, 2005). Scholars equally noted that supply chain integration has both strategic and operational relevance to marketing performance by enhancing its competitive advantage (Lambert, Cooper & Pagh, 1998; Bagchi & Skjoett-Larsen, 2002; Pagell, 2004; Jekey, et al, 2021).

Marketing performance on the other hand is described scholarly as a measure of contribution of organization's marketing functions to its corporate goals and objectives (Ambler, Kokinaki & Puntori, 2004). In another development, scholars emphasized that marketing performance cannot be complete without mentioning the matrices that are of relevance in measuring performance, which are product availability and customer satisfaction which are germane in this paper (Ambler et al. 2004). Perusing through the relationship between supply chain integration and marketing performance scholars pointed out that the widest degree of integration of channel members in the chain will enhance strong associate with performance improvement (Frohlich & Westbrook, 2007). In the same vein, scholars admitted that integration across

the supply chain has a positive influence on performance of firms (Bagehi & Chun Ha, 2005; Zailani & Rajagopal, 2005; Flynn, Huo & Zhao, 2010). Furthermore, the scholars submitted in their findings on the influence of supply chain integration on marketing performance that firms with better integration strategy of their supply chains, perform better on a variety of metrics. This finding was also affirm by Flynn et al (2010) that firms with better integration techniques in their supply chain perform well in a competitive market place. It is worthy of note to state that this paper will accommodate relationship integration as the dimension of supply chain integration while product availability and customer satisfaction are the measures of marketing performance.

2.2 Relationship Integration and Product Availability

Relationship integration has attracted widespread literature in the study of supply chain. It is established scholarly that firms do no longer function in isolation rather they collaborate with other channel members in order to increase the competitiveness in the supply chain by way of building relationship with suppliers and customers (Min, Roath, Daugherty, Genchev, Chen, Arndt & Ridney, 2005; Wang & Chan, 2010). It is worthy of note that no successful organisation works in isolation without incorporating other channel members to form a competitive giant in the business world. Therefore, relationship integration is defined as the exchange of information and joining of benefit with the buyer and supplier (Towers & Burnes, 2008). In the same vein Malori and Benton (1997) submitted that relationship integration is usually created to increase the financial and operational performance of each channel members through the reduction in total costs, reduction in inventories throughout

the supply chain, and increased levels of shared information. It is equally argued scholarly that relationship integration is based on trust, confidence, mutual understanding and common beliefs for building successful relationship among channel members (Nyaga, Whipple & Lynch, 2010).

Harmonious relationship between channel members will enhance availability of products in the downstream petroleum sector. In a common belief, product is defined as anything that is offered to a market for attention, acquisition, use or consumption which is capable of satisfying a want or need (Kotler & Armstrong, 2000). In this paper, product is narrowed down to petroleum products such as PMS, AGO and DPK. This implies that for a product to satisfy the consuming publics there must be availability. Therefore, product availability is considered as the central features that trigger sales (Hausman & Jekey, 2019; Siekpe, 2009; Lee, Kim, Petton, Knight & Forney, 2008). For product to be available for public consumption there has to be movement from the point of production to where it is needed. Therefore, petroleum product distribution is concern with the movement of refined petroleum product from the refineries to the dispensing stations with the aid of petroleum pipelines and marketing company (PPMC) which is saddle with wholesale supply, distribution and marketing of petroleum products (NNPC, 2010; Kotler & Armstrong, 2000).

It is believed that conflict among channel members can truncate effective distribution of petroleum products which might lead to panic buying, shortages, and scarcity at the point of purchase. Free flows of petroleum products must be all encompassing, which implies all channel members must be involved for free flow distribution. Therefore, it is our strong



believe that there is a significant and positive relationship between relationship integration and product availability which enhances marketing performance in the downstream petroleum sector.

2.3 Relationship Integration and Customer Satisfaction

It has been established in this paper what relationship integration is all about. Notwithstanding Brindley and Ritchie (2004) suggest that relationship integration is an important enabler of key processes in an organisation and its supply chain. Christopher (2005) emphasizes this point further by defining supply chain management in terms of the importance of relationship integration. Stank, Keller and Closs (2001) explained relationship integration in terms of a shared mental framework with customers and suppliers regarding inter-enterprise dependency and principles of collaboration. The authors emphasize on the necessity of relational behaviours for the development and maintenance of inter-organizational relationship in terms of trust, commitment, information sharing, communication, risk/reward sharing and relationship – specific investment (Clements, Dean & Cohen, 2007; Wilson, 2006; Stank, et al., 2001). In the extant literature, it is reviewed that the authors have been predominantly identified as important contribution to the development or maintenance of relationship integration between supply chain partners (Whipple et al, 2010). Wilson (2006) submitted that communication construct in collaborative relationships applies primarily to interpersonal relationship, or more specifically between channel members in the supply chain. Drawing from scholarly review, it is pertinent to note that customer satisfaction in the delivery of PMS, AGO and DPK is predicated on relationship integration among channel members. It is

on this note that (Rosenberg & Gepiel, 2017) contend that customers are veritable tool in business success. Furthermore, the authors emphasized that customers are scarce resource.

Customer satisfaction is paramount to an organisation. It is premise upon this notion that scholars contend that satisfied customers usually rebound and buy more from a particular location or dispensing gas stations especially when quality is attached to product (Hague & Hague, 2016). The authors further stated that even though PMS, AGO and DPK are products of necessity, customer network to reach other potential customers by sharing experiences (Hague & Hague, 2016). Rebekah and Sharyn (2004) submitted that providing quality of goods and services in the 21st century is not only to satisfy customers rather to safe organizational position in the competitive market. This implies that collaboration between channel members of the downstream petroleum sector will enhance effective distribution of PMS, AGO and DPK, so that customers will have products when needed. As earlier established in this paper, only satisfy customer will buy again and again from a particular service provider.

Since customers are fickle in nature and needs value for money spend, products must be available to fill the gaps through the collaboration of channel members by integrating different units and departments to ensure effective service delivery, which is often refers to as customer-oriented products or service (Hill, Brierley & MacDougall, 2003). Ideally, customer satisfaction is influenced by specific product or service features and perceptions of quality. Equally, satisfaction is influenced by customer emotional response, and perception of equity (Zeithal & Bitner, 2003). The authors further noted that an improvement in customer

satisfaction can provide organizational benefits like customer loyalty, repeat purchase and enhance positive words of mouth communication, which eventually produces organizational success (Tao, 2014). This implies that there is nexus between relationship integration and customer satisfaction of downstream petroleum sector. Based on scholarly review of literature, the research model in figure 1.1 below was formulated. Hence;

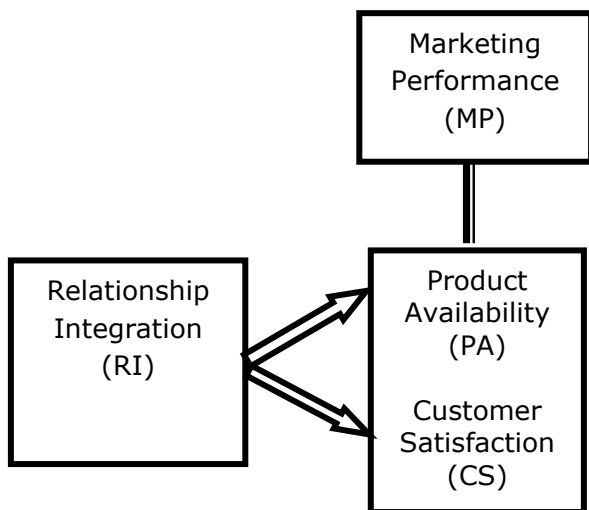


Figure 1: Conceptual Model

Therefore, the following hypotheses was formulated.

- H₀₁: Relationship integration has positive and significantly relates with product availability.
- H₀₂: Relationship integration positively and significantly relates with customer satisfaction.

3. Methodology

Cross sectional survey design was adopted in the study. The study was carried out in seven (7) major oil petroleum downstream marketing companies which comprises; Conoil Nig Plc, Forte Nig Plc, MRS Nig Plc, Mobil Nig Plc, Total Nig Plc, and NNPC Mega Stations of Six South-South

states in Nigeria, with accessible population of 930 top level management as revealed by the Human Resources departments of the companies. Since the population was known, purposive sampling technique was used, and Taro Yamane formula adopted to arrive at a sample size of 280, with an error margin of 5% (0.05). Primary data was used in the study to obtained relevant information from the respondents through the deployment of a structured questionnaire. The impression of each respondents was rated on a 5- point Likert – Scale in which 1, denotes “disagree, 2 denotes “strongly disagree” 3 denotes “Neutral”, 4 denotes “agree”, and 5 denotes “strongly agree” as well as an “uncertain alternative to prevent bias in response. Content validity was used for the instrument, while Cronbach’s Alpha technique was used to confirm the reliability of the construct on 28 respondents. Results was > .70. Partial least square- structural Equation modelling was used to analyse data with the aid of Statistical Package for Social Science (SPSS) Version 22.0.

4. Data Analysis and Discussion

4.1 Marketing Performance

Table 1: Descriptive Statistics on Marketing Performance

Construct	N	Minimum	Maximum	Mean	Std. Deviation
	Stat	Stat.	Stat.	Stat.	Stat.
MARKETING PERFORMANCE	218	2.04	3.14	2.50	.521
Valid N (listwise)	218				

Source: SPSS Computation from Data, 2021.



Table 2: Descriptive Statistics on Relationship Integration

Items	N	Min	Max	Mean	Std. Deviation	Skewness (S _k)		Kurtosis (K _u)	
	Stat.	Stat.	Stat.	Stat.	Stat.	Stat.	Std. Error	Stat.	Std. Error
RI ₁	218	3	5	3.52	.640	-.416	.160	3.201	.175
RI ₂	218	3	5	3.50	.586	.302	.223	2.900	.518
RI ₃	218	3	5	3.61	.459	-.245	.091	2.873	.408
RI ₄	218	3	4	2.73	.573	-.500	5.21	2.985	.369
RI ₅	218	3	5	3.87	.721	.381	.199	3.106	1.241

Source: SPSS Computation from Data, 2021.

Table 3: Descriptive Statistics on Product Availability

Items	N	Min	Max	Mean	Std. Deviation	Skewness (S _k)		Kurtosis (K _u)	
	Stat.	Stat.	Stat.	Stat.	Stat.	Stat.	Std. Error	Stat.	Std. Error
PA ₁	218	2	5	2.72	.443	.397	.232	2.831	.037
PA ₂	218	2	4	2.53	.391	-.472	.179	3.104	.531
PA ₃	218	2	5	3.14	.915	.388	.333	2.955	.524
PA ₄	218	2	5	2.81	.603	-.295	1.582	3.121	.070
PA ₅	218	2	4	2.57	.751	-.403	.208	3.042	.188

Source: SPSS Computation from Data, 2021.

Table 4: Descriptive Statistics on Customer Satisfaction

Items	N	Min	Max	Mean	Std. Deviation	Skewness (S _k)		Kurtosis (K _u)	
	Stat.	Stat.	Stat.	Stat.	Stat.	Stat.	Std. Error	Stat.	Std. Error
CS ₁	218	1	4	2.38	.491	.239	.350	3.031	2.012
CS ₂	218	1	4	2.04	.384	-.442	.172	2.804	1.559
CS ₃	218	1	4	2.55	.708	.411	.240	3.130	1.910
CS ₄	218	1	4	2.49	.676	-.183	.098	3.106	2.001
CS ₅	218	1	4	2.57	.513	-.038	.208	2.992	1.689

Source: SPSS Computation from Data, 2021.

4.2 Measurement Model

Table 5: Results on the Tests of Hypotheses H₀₁ and H₀₂,

Null Hypothesis	Path (Relationship)	Path Coefficient (β), (t – value)	Predictive Accuracy R^2	Effect Size- f^2	Predictive Relevance - Q^2	Decision
H ₀₁ :	RI -> PA	0.323(1.991) Significant	0.389 Moderate	0.301 Medium	0.181 Relevant	Not supported
H ₀₂ :	RI -> CS	0.362(3.367) Significant	0.349 Moderate	0.238 Medium	0.107 Relevant	Not supported

Source: SmartPLS 3.2.6 output on Research Data, 2021.

4.3 Structural Model

Table 6: Results of R^2 and Q^2

Endogenous Latent Variable	Correlation Coefficient (R)	Predictive Accuracy (R^2)	Adjusted R^2	Predictive Relevance (Q^2)
PA	0.624	0.389	0.387	0.181
CS	0.591	0.349	0.348	0.107

Reference values: R^2 , 0.19 = weak; R^2 , 0.33 = moderate; R^2 , 0.67 = substantial, Chin (1988). $Q^2 > 0$ = satisfactory predictive relevance, Hair et al., 2011.

Source: SmartPLS 3.2.6 output on research data, 2021.

The two measures of Marketing Performance were aggregated and analysed. Results on table 1 show that Marketing Performance is just at the cut off mean score ($M = 2.50$, $SD = .52$). This indicates that respondents are of the view that the petroleum major oil marketers have average marketing performance.

Table 2 show the mean, standard deviation, kurtosis, and skewness of each item for relationship integration. The results show that all the items have acceptable levels of normality, whereby RI₄ is the most skewed (- 0.500) and RI₁scoring 3.201 as the largest value of kurtosis. An assessment of respondents' view shows that relationship integration is high on all the items. The first item, RI₁, which sought to know if good relationship

exists among supply chain members scored high mean value ($M = 3.52$, $SD = 0.64$). Secondly, for RI₂, there was also a high score on the extent to which members of the supply chain perform well through relational interaction ($M = 3.50$, $SD = 0.57$). Similarly, there was a high mean output on RI₃ measures the extent to which channel members act in agreed manner due to good relationship among them ($M = 3.61$, $SD = 0.46$). Moreover, analysis on the fourth item (RI₄), reveals the affirmation that there is a high level of product supply because of good relationship among channel members ($M = 2.73$, $SD = 0.57$). Likewise, for item RI₅, the output shows a high score on the extent to which channel members do not work in isolation ($M = 3.87$, $SD = 0.72$).

Table 3 shows the mean, standard deviation, kurtosis, and skewness of each item for Product Availability. The results show that all indicators are within the acceptable limits of normality, whereby PA₂ is the most skewed (- 0.472) and PA₄ scoring 3.121 as the largest value of kurtosis. Respondents agreed that their organisations are within moderate range on all the items under Product Availability. The first item, PA₁, which is about the extent to which products are available had a moderate score ($M = 2.72$, $SD = 0.44$). The second item, PA₂, which solicits responses regarding the availability of PMS also had a moderate score ($M = 2.53$, $SD = 0.39$). Similarly, item PA₃ which is directed towards getting a response on the extent to which AGO is available had a moderate score ($M = 3.14$, $SD = 0.92$). Also, on item PA₄, when respondents were asked if DPK is always available, the aggregate response indicated a moderate score ($M = 2.81$, $SD = 0.60$). Lastly, for PA₆, there was a moderate mean score on the extent to which the firms forecast demand and supply products accordingly ($M = 2.57$, $SD = 0.75$).

Table 4 shows the mean, standard deviation, kurtosis, and skewness of each item for Customer Satisfaction. The results show that all indicators are within acceptable limits of normality, whereby CS₂ is the most skewed (- 0.442) and CS₃ scoring 3.130 as the largest value of kurtosis. Responses on the five items of Customer Satisfaction reveal that the petroleum marketing firms are low in customer satisfaction rating on all indicators except on item CS₃ and CS₅. In the case of CS₁, the researcher sought to know if customers are satisfied with the products of the organisation. Response to this item attracted low mean score ($M = 2.38$, $SD = 0.49$). The second item on Customer Satisfaction (CS₂) which measures the ability of the firms to meet

customers' demand had moderate mean score on the scale ($M = 2.04$, $SD = 0.38$). However, on the third item (CS₃), respondents agreed that customers in some instances get products from the organisations ($M = 2.55$, $SD = 0.71$). In item CS₄, respondents were asked the extent to which products are made available to loyal customers. Analysis on this item revealed a low mean score ($M = 2.49$, $SD = 0.68$). Lastly, as could be deduced from CS₅, the respondents believe the firms have a moderate propensity to weather environmental disturbances and continue to thrive ($M = 2.57$, $SD = 0.51$).

The results in table 5, depict that there are positive, moderate and significant correlations (R) between the relationship integration, product availability and customer satisfaction. The correlation of relationship integration on product availability is 62.4%; while customer satisfaction recorded R value of 59.1%. Thus, product availability attracted the higher correlation score whereas customer satisfaction recorded a lower score. Added to this is the R^2 which shows the predictive power (or accuracy) of the models.

The first model, $PA = f\{RI\}$, recorded a moderate R^2 of 0.389. This means that relationship integration explained 38.9% of the variance of product availability, while other unidentified variables are responsible for the remaining 61.1%. Thus, the model has a moderate predictive accuracy.

Secondly, $CS = f\{RI\}$ recorded moderate R^2 of 0.349. This means that relationship integration explained 34.9% of the variance of customer satisfaction, while other unidentified variables are responsible for the remaining 65.1%. Thus, the model has a moderate predictive accuracy.



5. Discussion of Findings

The study aimed at ascertaining the nexus between relationship integration, product availability and customer satisfaction of downstream petroleum sector. Two hypotheses were tested in the study.

First, findings between relationship integration and product availability depict that a positive and significant relationship exist between the two variables. Furthermore, this demonstrates that building strong relationships within all functional units, departments and channel members of the downstream sector of petroleum industry will enhance the capability of the sector to make Petroleum Products (PMS, AGO & DPK) available at the dispensing unit. This finding is in support of the views of scholars who state that firms does not longer compete as a single entity rather they collaborate with other channel members to increase the competitiveness of their supply chain and building relationships with suppliers and customer to ensure petroleum products are available for consumption (Wang & Chan, 2010).

The second hypothesis revealed that relationship integration has a positive and significant relationship with customer satisfaction. This statistical revelation is in line with the opinions of Min, Roath, Daughterty & Richey (2005) that relationship between channel members in the petroleum industry enhances effective supply of products to respective point of sale which in turn give rise to customer satisfaction. This equally implies that when petroleum marketers increase their relationship networks among functional units and departments, they will be more equipped to meet up customers' demand and give satisfactory services.

6. Conclusion and Recommendations

The essence of relationship integration in supply chain is to enhance effective service delivery of petroleum products such as PMS, AGO and DPK to be available to dispensing stations so as to Dive Customer optimum satisfaction from findings relationship among channel members enhance marketing performance. Most shortages and scarcities in the petroleum industry are as a result of disunity among channel members. Therefore, it is imperative to state that effective marketing performance in the oil and gas industry will necessitate relational cohesion among channel partners in order to ensure availability of petroleum products that will enhance customer satisfaction.

Premise upon our findings and conclusion, the following recommendations were reached:

1. Management of petroleum major oil marketing firms should ensure greater interaction, cooperation and collaboration with agencies such As Petroleum Products Marketing Company (PPMC) and Department of Petroleum Resources (DPR) to ensure on time delivery of products and without diversion.
2. Petroleum marketing firms should ensure there is a functional relationship unit in the firms that is saddle with the coordination of key suppliers in the company's supply chain so as to reduce supplier lead time.

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