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IMPROVING ON-TIME DELIVERY THROUGH SUPPLY CHAIN COLLABORATION: THE EXPERIENCE OF BREWERY FIRMS IN SOUTH-SOUTH, NIGERIA

Sunny R. Igwe[1+]
Coker Preye Robert[2]
God'swill C. Chukwu[3]

[1]*Marketing Department, University of Port Harcourt, P.M.B 5323 Port Harcourt, Nigeria*
Email: chikordi@yahoo.com
(+ Corresponding author)
[2]*School of Graduate studies, University of Port Harcourt, Nigeria*
[3]*Marketing department, Ignatus Ajuru university of Education, Rivers State, Nigeria*

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ABSTRACT

In today's competitive environment, firms are no longer internally sufficient. This implies that for organization to increase in performance, informational and relational synergies is encouraged among supply chain participants. The purpose of this paper is to investigates supply chain collaborative activities on On-time delivery. Employing stratified sampling technique and with questionnaire, 210 brewery firms, distributors and retailers supplied the data. Pearson product moment correlation and multiple regressions were used for test of hypothesis. The findings reveal specifically that dedicated investment, information sharing, decision synchronization and incentive alignment have significant and positive influence on (on-time delivery). This suggests that supply chain collaboration effect on time delivery. To harness competitive edge of on- time delivery, brewery firms should strategically share in plan, build, and ensure collaborative activities cut across all the trading partners and instill trust building in process in the supply chain.

1. INTRODUCTION

The Nigeria's Brewery industry is regarded as the second most competitive beer market in Africa, after South Africa (Sterling capital research, July 2010). The historical development of the brewery industry in Nigeria pre date the colonial era, but formally started as a result of the establishment of Nigerian Breweries Limited in 1946 (Nig. Brewery sector report, July 2014).The Nigerian brewing industry is dominated by Nigerian breweries PLC and Guinness Nigeria PLC controlling about 90% of the market, while other marginal players (Pabod Breweries and International Breweries) control a small segment of the market apart from Nigerian Breweries and Guinness, the two dominant players, SABMiller and Castel make up the four global players that shape Africa's competitive brewery market. The four brewers have a market share of 80 per cent. The industry is at growth- saturation stage striving on how to delivery and meet customer daily demand, and many supply chain actors depending on the beer industry for survival. However, based on the significance of brewing industry in manufacturing's sector gross domestic product (GDP), employment and

income in Nigeria, and in providing alcoholic drink for refreshment, relaxation and social activity; manufacturers, distributors and retailers are expected to provide a distributive system that is highly effective in meeting nation's and consumer demands. Perhaps an effective distributive system could only be achieved when manufacturers collaborate with distributors and retailers.

Supply chain Collaboration is when two or more firms cooperate and coordinate themselves to freely direct the smooth flow of goods in order to attain their mutual objectives (Mentzer *et al*., 2001). These collaborative external efforts entail sharing of information, dedicating investment, making joint decisions, and aligning incentives (Simatupang and Sridharan, 2004; Nyaga *et al*., 2010; Mathuramaytha, 2011; Derek *et al*., 2011). These dimensions have not been empirically and sufficiently invigorated by Nigeria's brewery firms in initiating supply chain collaboration in regards to distribution; which seems worrisome considering the benefits that would have been derived, especially when sharing information on consumer needs and preferences, order placement, and demand forecast. This trend is accompanied by high level of distrust among trading partners. Trust has been a sound index for collaboration. It has been successfully proven that it enhances supply chain collaboration and business performance (Nyaga *et al*., 2010; Disney and Pairach, 2012). When manufacturers and distributors exhibit high level of trust, they are bound to be committed in such a relationship and this could result to performance. Daugherty *et al*., (2006) opined that manufacturers initiated collaborative strategies to improve visibility, increase service levels, improve flexibility, and desirable level of customer satisfaction and on-time delivery. However, despite the significance of collaboration, brewery firms are still striving to design performance measures that would help to ensure the desirable level of collaboration. The reason is that strategic decisions such as selecting the right supplier, the right partner, the right market, sharing the right information, aligning the right resources, and clearly defining objectives and goals are not properly articulated in the supply chain collaborative framework. Therefore, a lot of collaborative strategies have failed to ensure performance (Frankel *et al*., 2002).

This study is anchored on four empirical constructs of supply chain collaboration and performance done in developed economies by Simatupang and Sridharan, 2004; Nyaga *et al*., 2010; While, Derek *et al*. (2011) have done studies on vertical collaboration and physical distribution service quality of soft drink industry in Uganda. In Nigeria, there is scare empirical study on supply chain collaboration that employed four constructs of information sharing, dedicated investment, decision synchronization, and incentive alignments and related to on-time delivery and specifically on Brewery industry. As such, it provides opportunity for brewery firms in Nigeria to key into these dimensions and tap from the benefits to enhance performance. Perhaps, most empirical studies are dyadic in nature that is to say they focused on the relationship between manufacturers and distributors. In this study, it is multi-dimensional in nature by incorporating the retailers to ascertain the impact of the variables. In building supply chain performance (on time delivery, satisfaction, response time efficiency and inventory cost saving time and mitigating risk) less strategic emphasis and research has been on chain collaboration - relational and informational, especially from the external chain participants. Therefore, this paper tends to explore the empirical relationship between the dimensions of supply chain collaboration and business performance within the domain of brewery industry in south-south, Nigeria.

This paper is organized as follows; theoretical framework and hypotheses stated, methodology, result of findings, discussions, implications, limitations and suggestions for further research and conclusions.

2. REVIEW OF LITERATURE

2.1. Supply chain collaboration

Supply chain collaboration explains the process whereby more than two autonomous firms operating together to design plans and carry out supply chain operations to achieve their goals than when acting alone (Simatupang and Sridharan, 2002). Perhaps, supply chain collaboration is the

mutual cooperation of independent firms within the same distributive network that harmonized their resources to achieve supply chain goals. In this context, supply chain means all external and independent firms involve in creating and delivery of value to the customer. However, from the above definitions, it is apparent that collaboration is based on the principle of mutuality; in the sense that efforts are geared towards achieving a mutual, align goals and strategic objective, and trust building (Simatupang and Sridharan, 2002). The intent of mutual strategic objective should be targeted to satisfying the end users rather than opportunistic tendencies, because they are the reason why brewery manufacturers and distributors are in business. By doing so, chain members could maximize performance.

It could be said that brewery's manufacturing organizations are striving to design supply chain collaborative strategy as a result of the substantial benefits its offers in the business domain. They began to perceive that the traditional supply chain is becoming antiquated due to the dynamic and complex nature of the market and profound danger it's posed on organizational profitability and sustainability. Many scholars have excavated the benefits of supply chain collaboration that its improve performance within the context of lowering inventory cost, profitability, improved customer service level, filtering the bullwhip effects, reinforcement of relationship, ensuring on–time delivery, creating accurate forecasts, reducing markdowns, increasing sales, customers satisfaction and increase ideas (Mentzer *et al*., 2000; Simatupang and Sridharan; 2004, Min *et al*., 2005). Perhaps these benefits have motivated brewery firms to engage in supply chain collaboration. In addition, another cogent reason that induced firms to initiate collaborative strategy is the intensive competition in the supply chain domain (Gimeno, 2004).

In order to explore the empirical relationship and provide an in depth insight on supply chain collaboration and business performance, we provide a conceptual model below for this study.

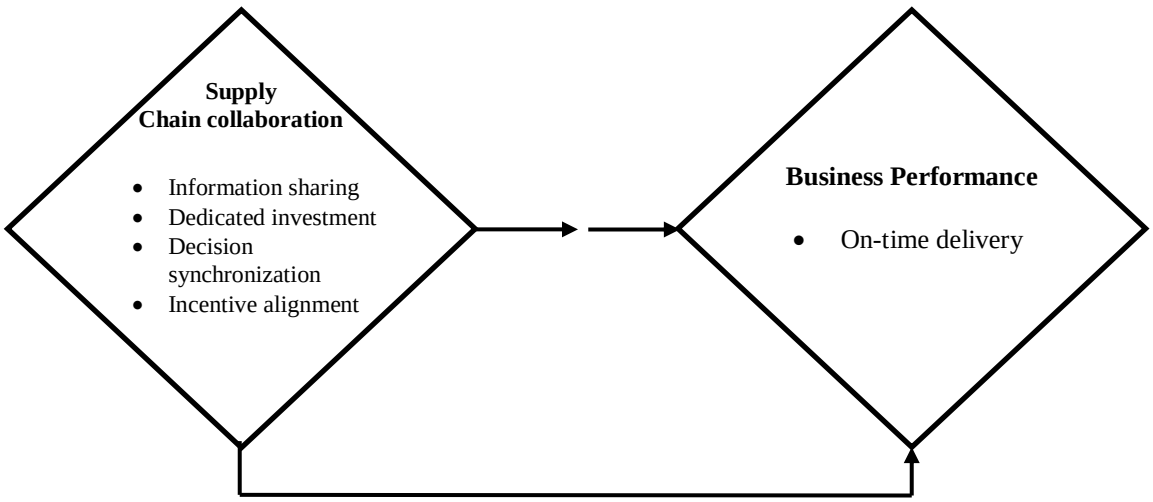

Figure-1. Conceptual model of supply chain and business performance

2.1. Dimensions of supply chain collaboration

The dimensions of collaboration in this study, is anchored on the following constructs such as; sharing of information, dedicated investment, decision synchronization and incentive alignment (Simatupang and Sridharan 2004 and Nyaga *et al*., 2010).

2.2. Information sharing

Information sharing deals with the process of disseminating timely and reliable information that would aid managers to plan effectively and control channel operations (Simatupang and Sridharan, 2004). Information sharing could be seen as deliberate action for the mutual exchange of vital and reliable information among channel partners in timely manner. Channel partners share critical

information among themselves to create a comprehensive visibility in the supply chain. The visibility provides an in depth insight on how brewery manufacturers match demand and supply, to prevent inventory stock out or excessive inventory that would have manifested in loss of customer confidence and erode profit in the supply chain, which would have been otherwise where there are limited information sharing (Simatupang and Sridharan, 2002).

Information sharing is very vital, particularly when sharing demand forecast information, where demand highly fluctuates and customer taste and delight changes persistently. Information sharing is the strategic route that links dedicated investment, decision synchronization and incentive alignment in a collaborative relationship. In order to engage in effective decision making and problem solving relating to declining sales, high inventory costs, customers service level, demand amplification and stock out etc. information has to be shared among participating members to really ascertain the causes of these problems and possible strategies to remedy the situations.

For information sharing to be effective in ensuring performance, it must be align with certain key pillars such as availability, relevancy, accuracy, timeliness, mutual exchange and reliability (Simatupang and Sridharan, 2002; Nyaga *et al*., 2010), the absence the these qualities would create risk , waste of resources, counter- productive especially with timeliness, dynamism or competitiveness inherent in the environment. Empirical studies of supply chain collaboration confirmed information sharing impact positively on business performance such as just-in-time production, on-time delivery, supply chain planning, inventory performance, lead time, flexibility and logistic integration and also help to reduce the bullwhip effect and safety stock (Zhou and Benton, 2007; Simatupang and Sridharan, 2004; Prajogo and Olhager, 2012). Given these predispositions, we therefore hypothesize that:

Ha1: Information sharing significantly and positively impact on on-time delivery.

2.3. Dedicated investment

Dedicated investment refers to investments initiated by manufacturer or distributor that is committed to the relationship (Heide and John, 1990). Dedicated investment entails mutual commitment of partners by deploying key resources or specific assets in the relationship. However, improving and sustaining quality relationship is a rigorous task, which requires quality and reasonable investment (Fynes *et al*., 2004).

When partners strategically dedicate their investments in a network of relationship, it helps to sustain the relationship and the collaboration becomes more vibrant as such partners would be eager to share critical information, jointly make decisions, and align incentives. Dedicated investments could help to build trust among trading partners and strengthen the relationship, making the supply chain partners to be more committed in achieving their pre-determined goals. In supply chain collaborative framework, dedicated investment is measured in terms of substantial and significant investment in respect of time, personnel, money, training, expertise, personnel, technology, and equipment and has positive relationship with business performance (Nyaga *et al*., 2010; Disney and Pairach, 2012). In view of the above discussion, we therefore hypothesized the following:

Ha2: Dedicated investment significantly and positively impact on on-time delivery.

2.4. Decision synchronization

Decision synchronization involves the process whereby chain partners jointly engaged in making decisions, planning and implementing decisions across the supply chain (Simatupang and Sridharan, 2002). We can allude that decision synchronization involves joint session of ideas by chain partners in coordinating supply chain operations for the benefit of all. Decision synchronization as dimension of supply chain collaboration facilitates joint planning, help to coordinate decisions on order placement, order delivery, inventory replenishment new product design, consultation on pricing policy, decisions on optimal order quantity, demand forecast, and promotional events (Simatupang

and Sridharan, 2004; Krishnapriya and Baral, 2014), as well as joint research on customer needs and preferences. According to Nyaga *et al*., (2010) that to have a successful collaborative relationship partners must cooperate as a team to plan, coordinate activities and make decisions. Decision synchronization enables manufacturers or distributors to make their intentions known and strive for relationship benefits and as well safe guard their dedicated investment (Nyaga *et al*., 2010). Decision Synchronization is closely connected to information sharing (Sheu *et al*., 2006) and also promotes channel intelligence.

When manufacturer and distributors jointly work together as a team in supply chain operations, they learn from each other by gaining knowledge of market trends. The knowledge gained could as well result to innovation of new ideas and product development (Pairach and Disney (2012), and that joint effort promote knowledge transfer and mutual understanding between supply chain partners which enhance better utilization of dedicated investment between partners. Joint effort promotes trust, commitment and performance (Nyaga *et al*., 2010). When chain partner makes decision without incorporating other members for their input, it often results to weak performance. Joint effort in making decisions enhance a lot of benefits to chain members such as product availability and on-time delivery (Bowersox *et al*., 2000). In view of the above discussions, the following are hypothesized:

Ha3: Decision Synchronization Significantly and positively impact on on-time delivery.

2.5. Incentive alignment

The concept of incentive alignment deals with sharing of risks, costs, losses and benefits (Krishnapriya and Baral, 2014). Incentive alignment involves the mutual or collective deliberations on how actual and perceived incentives are to be harmonized and shared in line with channel objectives).Incentive alignment as a construct of collaboration is measured by sharing costs, risks and benefits and designing incentive programs such as share savings on reduced inventory cost, performance reward, reward for effort, penalties, making provisions for defective products and retail price-cut to sell at higher profit and agreement on order changes (Simatupang and Sridharan, 2002 and Mathuramaytha, 2011).

In regards to the brewery industry in Nigeria, the incentives that could be shared among supply chain members beside profit are; brewers providing warehouses for distributors who enjoy preferential trade terms, in-bar promotions, provisions of chillers and cool boxes in strategic locations (Vetiva Research, Nig. Brewery Sector Report, 2010) and free delivery of beer to distributors, designing of packaging materials like bottles and crates and promotional items i.e free gifts and prizes that are meant to improve business performance. The brewery firms share risk with distributors by engaging them to commit their investments in the relationship. For instance the warehouses provided by brewery manufacturers to distributors are mostly done by counterpart funding, but the manufacturer brings large chunk of the investments which payments are spread over a long period of time for distributors. However, despite these incentives given to distributors, critical issues in incentive alignment is the optimum way to share and collect these benefit and risk (Simatupang and Sridharan, 2002). Therefore, effective brainstorming, implementation and close monitory is required by trading partners. It is obvious that incentive misalignments are the remote causes of excess inventory, stock-out, in-accurate forecast, poor sales, and dissatisfied customers (Narayanan and Raman, 2004).

In the light of the above discussion, by examining the impact of incentive alignment on performance, we therefore hypothesized the following:

Ha4: Incentive alignment significantly and positively impact on on-time delivery.

2.6. Business performance

Business performance is the operational ability of management, geared towards attaining the goals of major shareholders and stands as a measure of organizational success. We can assert that business performance is an outcome of achievements, prompted by managerial capabilities. Krishnapriya and Baral (2014) supported the argument that business performance measurement is very significant in the appraisal of any system, and its stands as a strategic tool that provides an avenue to attain the pre-determine objectives needed in satisfying the organizational mission or strategy statement. It act as a watch-dog for standard to guide the course of action of organizational members and as a control. Regular performance measures adopted in most business organizations are; profits, market share, earnings on investment, loyalty and satisfaction of customers (Wood, 2006). However, within the context of supply chain, Krishnapriya and Baral (2014) state that for organizational to effectively measure performance, it has to differentiate itself from other business performance models by incorporating manufacturers and distributors; making it a multiple business model. Total logistic performances are customer satisfaction, supply chain response time, reduction in inventory cost and assets utilization (Simatupang and Sridharan, 2002). Specifically, we are concerned with supply chain response time via on-time delivery (product availability).

2.7. On-Time delivery

The concept on-time delivery measures performance in terms of perfect delivery and customer service level (Gunasekaran *et al*., 2004) and a twin concept called on-time order fill, it is a mix of delivery reliability and order completeness. Simatupang and Sridharan (2004), states that on-time delivery is the amount of all demand orders distributed on or before the agreed delivery date. However, on-time delivery refers to as the expected and optimal delivery time and product availability. Brewery manufacturers, distributors and retailers are becoming time conscious in order to satisfy customers.

To achieve this, brewery firms urgently need and ensure that they give all-time and on-time delivery. On-time delivery could be achieved by initiating collaborative strategies, especially when coordinating information flow and processes on sales, order processing and inventory replenishment. It is argued that key factors that can militate against delivery in terms of on-time delivery include; production schedule, order processing, the speed of driver, reliability of driver, rate of delivery, location of depots (Gunasekaran *et al*., 2004). Perhaps, managerial competencies in these areas can lead to a decrease in the inventory levels while late deliveries may constitutes to production Stoppages cost, loss of customer good will switch (Guiffrida and Nagi, 2006), couple with excess inventory, decline in sales, profit, market share and dissatisfied customers.

3. RESEARCH METHODOLOGY

The population of this study consists of the totality of Brewery firms, distributors, and retailers in South-South, Nigeria. Preliminary available record from Nigeria Brewery sector report (Meristem equity research, July 2014), put the Brewery firms in south-south region are: Nigeria breweries PLC, Guinness Nigeria PLC, PABOD breweries and champion breweries PLC. To select a sample that covers the heterogeneous and holistic characteristics of the population. A pilot study of four (4) brewery firms; 10 respondents from the brewery firms, 5 distributors and 10 retailers interviewed, revealed that 20 respondents indicated that the variables outlined in the pilot survey instrument are strongly considered, while 5 of the respondents indicated that the variables outlined were not strongly considered. Therefore, the sample size was determined, thus using the Top man formula.

$$n = \frac{Z^2 PQ}{e^2}$$

Where, N=Sample size
Z=Degree of confidence
P= Probability of positive response

Q = probability of negative response
e= Standard error
Note: Z= 95%=1.96
e= 5%= 0.05
P=20/25=0.8
Q = 1 − 0.8

$$n = \frac{1.96^2 0.8(1-0.8)}{0.05^2}$$

$$= \frac{0.614656}{0.0025} = 245.8624$$

$$N \approx 246$$

The sample size is approximately 246.

It is pertinent that the sample size is determined on condition of circumstances, quota and convenience, as we carter for cost, precision and time constrains (Anyanwu, 2000). Similarly, the sample distribution is show pattern is shown below

Table-1. Distribution of sample size

S/No	Category (Chain Partners)	Sample
1.	Manufacturers in south-south zone	
	✓ Nigeria Breweries PLC	17
	✓ Guiness Breweries PLC	17
	✓ Pabod Breweries PLC	17
	✓ Champion Breweries PLC	17
2	Distributors/wholesalers in south-south zone	
	✓ Nigeria Breweries plc	17
	✓ Guiness Breweries plc	17
	✓ Pabod Breweries plc	17
	✓ Champion Breweries plc	17
3.	Retail outlets in south-south zone	
	✓ Bulk brewery retailers	22
	✓ Hotels	22
	✓ Bars	22
	✓ Night Clubs	22
	✓ Super markets	22
	Total	246

Source: Field survey, 2016

Table-2. Preliminary Nigeria brewery sector report; Meristem equity research, July 2014

S/No	Brewery Supply Chain Partners (South-South)	Sample	Respondents	Rate Of Respondents %
1.	Brewery manufacturers	68	59	28.10
2.	Distributors/wholesalers	68	61	29.05
3.	Retailers	110	90	42.86
	Total	246	210	100.00

Source: Field survey, 2016

The Table 1 is further summarized in Table 2.

Out of the 246 copies of questionnaire sent, only 59(28.1%), 61(29.05%) and 90(42.8%) manufacturer, wholesaler and retailer respectively completed, filled and returned the instrument; achieving a response rate of 85.4%. Thus using the Top man formula 210 respondents were the basis for analysis which was gathered through stratified sampling simple random techniques from

brewery manufacturers, distributors and retailers in south-south Nigeria. The target respondents from the brewery's firms, distributors and retailers cut across senior executives, line managers, supervisors, sales persons, sales representatives, store keepers, drivers and agents.

The (5) constructs used multi item measures adopted from; decision synchronization, dedicated investment , information sharing incentive alignment (Simatupang and Sridharan, 2004; Nyaga *et al*., 2010), and on-time delivery (Gunasekaran *et al*., 2004; Nyaga *et al*., 2010). Also 5 point Likert scale type, ranging from strongly agreed (5) to strongly disagree (1) was used. And pearson product moment correlation and multi regression were used to the hypotheses testing with aid of SPSS

4. DATA ANALYSIS AND FINDINGS

Table-3. Descriptive statistics

Variables	Mean	No of item	Standard Deviation	Cronbach Alpha
Information sharing	3.73	7	1.318	0.988
Dedicated Investment	2.50	5	1.462	0.974
Decision Synchronization	2.64	7	1.428	0.993
Incentive Alignment	3.19	4	1.355	0.984
On-time Delivery	3.93	4	1.115	0.981

Source: Authors' own analysis

The results of the descriptive statistics revealed that the mean scores of information sharing, dedicated investment, decision synchronization, incentive alignment, trust, on-time delivery and are 3.73, 2.5, 2.64, 3.19, and 3.93 respectively.

And the reliability coefficients are all above 0.7. The low mean scores of dedicated investment and decision synchronization was attributed to the fact that brewery manufacturers does not substantially dedicate investment in the aspect of technology, expertise, finance and personnel with the distributors and as well as the retailers. Secondly, retailers are not incorporated in joint decision making and planning despite the fact that they are the final interface with the consumers, having full knowledge of the market. Finally, the mean score of incentive alignment is relatively low as compared to information sharing. The reason being that the incentive given to distributors by brewery manufacturers does not trickle down to retailers; this has been a major setback in the collaborative relationship.

4.1. Correlation analysis

The correlation analysis was employed to ascertain the strength of relationship between the predictor variables and the measures. The Pearson product moment correlation was adopted to test the various hypotheses.

Ha1: There is significant and positive relationship between information sharing and business performance (on-time delivery) in brewery firms in south-south Nigeria.

From the result of the Table 4, the correlation coefficient (r =.947**) between information sharing (on-time delivery) is very strong, positive and significant at p= 0.000. The coefficient of determination indicates that 95% of on-time delivery can be explained by information sharing. Based on this, the alternate hypotheses are accepted. Therefore, there is a significant relationship between information sharing and business performance (on- time delivery) in the brewery firms in south-south

Table-4. Correlation Test of hypotheses

		Dedicated Investment	On-Time Delivery
Dedicated Investment	Pearson Correlation	1	0.744**
	Sig. (2-tailed)		0.000
	N	210	210
On-Time Delivery	Pearson Correlation	0.744**	1
	Sig. (2-tailed)	0.000	
	N	210	210
Information sharing	Pearson Correlation	1	0.947**
	Sig. (2-tailed)		0.000
	N	210	210
On-Time Delivery	Pearson Correlation	0.947**	1
	Sig. (2-tailed)	0.000	
	N	210	210
Decision Synchronization	Pearson Correlation	1	0.792**
	Sig. (2-tailed)		0.000
	N	210	210
On-Time Delivery	Pearson Correlation	0.792**	1
	Sig. (2-tailed)	0.000	
	N	210	210
Incentive Alignment	Pearson Correlation	1	0.848**
	Sig. (2-tailed)		0.000
	N	210	210
On-Time Delivery	Pearson Correlation	0.848**	1
	Sig. (2-tailed)	0.000	
	N	210	210

**. Correlation is significant at the 0.01 level (2-tailed)

Ha2: There is significant and positive relationship between dedicated investment and business performance (on-time delivery) in brewery firms in south-south, Nigeria.

The result shows a strong correlation exist between the variables which is statistical significant (r = 0.744** n= 210 and p<0.05). Therefore, we accept the alternate hypotheses (and Ha_2) on the bases of the significant level of the correlation. This means that of on-time delivery has relationship and can easily be explained by dedicated investment of brewery firms.

Ha3: Decision synchronization significantly relate with on-time delivery positively in brewery firms.

The result shows the correlation coefficient of decision synchronization and business performance (on-time delivery) as (r =0.792**) implying that the relationship between the variables are very strong. The coefficient of determination indicates that 79% of on-time delivery e explained by decision synchronization in the brewery firms. The significant value of 0.000 (p< 0.05) reveals a significant relationship. Based on this, the alternate hypotheses are accepted. Therefore, there is a significant relationship between decision synchronization and the two measures of business performance (on-time delivery) in the brewery firms in south-south.

Ha4: Incentive alignment significantly relates with business performance (on-time delivery) positively.

The result revealed the correlation coefficient of incentive alignment and business performance (on-time delivery) as (r =0.848**) implying that the relationship between the variables are very strong. On-time delivery can be explained 84% by incentive alignment in the brewery firms. The significant value of 0.000 (p< 0.05) reveals a significant relationship exist between variables. Based on this, the alternate hypotheses are accepted. Therefore, there is a significant relationship between incentive

alignment and (on-time delivery). However, correlation is not to predict each construct to on time delivery, therefore regression is required.

4.2. Multiple regression analysis

Table-5a. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.955[a]	0.913	0.911	0.414

a. Predictors: (Constant), Incentive alignment, Information sharing, Dedicated investment, Decision synchronization

Table-5b. ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	367.045	4	91.761	534.879	0.000[b]
	Residual	35.169	205	0.172		
	Total	402.214	209			

a. Dependent Variables: on-time delivery
b. Predictors: (Constant), Incentive alignment, Information sharing, dedicated investment, Decision synchronization

Table-6. Collinearity coefficient

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Tolerance	VIF
1	(Constant)	1.512	0.110		13.810	0.000	1.296	1.728		
	Dedicated	-0.675	0.115	-0.884	-5.860	0.000	-0.902	-.448	0.552	1.811
	Information	0.321	0.238	0.395	1.348	0.037	-0.148	.789	0.594	1.683
	Decision	0.541	0.117	0.693	4.609	0.000	0.310	.772	0.752	1.329
	Incentive	0.520	0.237	0.632	2.199	0.029	0.054	.987	0.814	1.228

a. Dependent Variable: On-Time Delivery

A multiple regression analysis was conducted to determine the strength of relationship between the four dimensions and on- time delivery. The finding revealed that these variables statistically and significantly predict on – time delivery, $F(4, 205) = 534.879, 219.735, p< .0005, R^2 = 0.913$. The coefficient of determination R^2 contributes or explain 91% on –time delivery, while (100-91%)= 9% that is, unexplained in the dimension (error term) and the R=0.911 represent how very strong the relationship is.

All the four dimensions of supply chain collaboration put together significantly predict 91% on-time delivery at $p< .05$ It further explain how fit the model is F and the sig value
The Table 6 show that there is absence of multi collinearity as each predictor significantly predict the On-time delivery and the tolerance values are all less than 0 .1 or 0.2. and the VIF values are less than 5 and not above 10 as generally advised.

5. DISCUSSION OF FINDINGS

5.1. Information sharing and business performance

The study revealed that information sharing is significantly driver and positive predictor of on-time delivery in brewery firms. The findings stand on the premise that for information to predict performance, it must be reliable and timely when being shared. This finding is line with the empirical findings of Simatupang and Sridharan (2004); Nyaga *et al.* (2010) that information sharing has a robust impact on business performance.

In Nigeria, brewery manufacturers are skeptical of the behavior of distributors and retailers for compromising trade secrets for opportunistic gains, yet information are being shared to a large extent as a result of the significant benefits it offers in the business domain. However, information sharing between brewery manufacturers, distributors and retailers in Nigeria, is very important because it helps to eliminate the almighty bullwhip effects that is prevalent in most brewery firms by providing a clear market visibility of demand and supply situations and reduces cost of operations, most especially in the aspect of inventory carrying cost and transportation costs. It increases market responsiveness in the aspect of on-time delivery, which in turn results to high customer service level.

5.2. Dedicated investment and business performance

The alternative hypothesis was accepted that there is significant and positive relationship between dedicated investment and on-time delivery in brewery firms in south- south Nigeria. The finding revealed that dedicated investment can be used to influence on-time delivery.

It is rational to assert that when brewery firms dedicate their investment in respect of technology, finance, personnel and time such specific investments would result to inter-partnership commitment. Partners are committed as a result of the key resources they have deployed in the business. This finding is in agreement with the empirical findings of Nyaga *et al.* (2010) that dedicated investment significantly impact on commitment in both buyer and supplier model when studied independently which in turn leads to performance. When supply chain partners dedicated their investment, they are obliged to ensure that such investment is protected by creating a platform for customers to receive value added services.

5.3. Decision synchronization and business performance

The finding supports that decision synchronization significantly and positively predicts on-time delivery. Though brewery manufacturers and distributors carries out arms-length collaboration with retailers, the result still proves to be significant because of the strong collaboration between manufacturers and distributors. This findings is compatible with the findings of Simatupang and Sridharan (2004); Nyaga *et al.* (2010; Pariach and Disney (2012) that decision synchronization has a vigorous impact on business performance in regards to on-time delivery. Perhaps the findings from Derek *et al.* (2011) is in disagreement with this finding, that decision synchronization does not predict physical distribution services quality of soft drink demand chain.

5.4. Incentive alignment and business performance

It revealed that incentive alignment positively relates and siginificant on on-time delivery. This position is in line with the empirical findings of Simatupang and Sridharan (2004); Derek *et al.* (2011) that incentive alignment is a significant predictor of business performance. It is clear fact that if incentives are not effectively aligned in the supply chain, the strategic intent of the firms in regards to collaboration will not optimize business performance (on-time delivery). Distributors and retailers collaborate as a result of the benefits they will derive from the relationship. Therefore, it is important that brewery manufacturers should provide incentives like free joint shoppers program, free delivery, retail price-cuts, and allowance for product defects to trading partners.

6. THEORETICAL AND PRACTICAL IMPLICATIONS

6.1. Theoretical implication

This study has contributed to knowledge building by empirically proven the relationship between supply chain collaboration and on time delivery The study has provided profound empirical evidence that dedicated investment, information sharing, decision synchronization and incentive alignment are significant predictors of business performance in the aspect of on-time delivery. Perhaps the benefit of collaboration has prompted brewery manufacturers, distributors and retailers to initiate collaboration strategy. Apparently, it could be established that the essence of brewery firms to collaborate (Nyaga *et al.*, 2010). The has provided the varying strength of each predictor to

the overall on time delivery. Therefore, organizations and individuals who have decided to study the impact of supply chain collaboration and business performance can use this study as foundation for their studies.

6.2. Practical implication

The practical implication of this study is that practicing managers both in the service and manufacturing industries should take cognizance of the benefits of collaboration in regards to these dimension in their planning operations to build a formidable relationship with partners in order to enhance performance in the supply chain.

It has expose to practicing and potential managers in supply chain the collaboration activities to concentrate it resource and the one to show minimal management time, energy and resource especially on information sharing and decision synchronization. It has also shown the possibility of supply chain participants to monitor and consider each of these collaboration activities as a trust-building process which is necessary in supply chain, since trust is proven to be a key moderator of effective collaboration and performance. This could be achieved by designing a transparent framework, state of the art that promotes dedicated investments, information sharing, and decision synchronization and incentive alignments.

7. CONCLUSION

Each supply chain actor has a significant role to contribute in ensuring the overall goal achievement the supply chain, and for the mutual benefit of all. Any slack or weakness in informational and relational one chain member would mean delay and deficiency in product/ service delivery and this will in turn affect performance of the mutual interest. In conclusion, supply chain collaboration positively effects on–time delivery.

It followed that dedicated investment and decision synchronization are mostly done between the brewery manufacturers and distributors. The retailers are not practical involved in these areas of collaboration, despite the significance of retailers in regards to market knowledge. The retailers are the starting point of market information flow in supply chain relationship. This is quite worrisome from the perspective of retailers. Information sharing and incentive alignment practices actually cut across all trading partners; this is encouraging. The study found that dedicated investment, information sharing, decision synchronization and incentive alignments are significant predictors of On-time delivery in brewery industry in south-south, and Nigeria in general. Therefore, supply chain collaboration is a necessary driver on time delivery.

Finally, the study recommends that to harness performance, brewery firms should periodically collectively and individual plan, share, invest, control monitor the collaborative activities that cut across all trading partners and trust building processes must be encouraged in the supply chain. Supply chain should develop state of the art to gather & share information, they should develop framework and contractual model that could foster these construct understudy.

7.1. Limitations and suggestion for further studies

1) This study adopted only four (4) dimensions of supply chain collaboration by Simatupang and Sridharan, 2004; Nyaga *et al.* 2010. There are other dimensions that could be empirically tested to ascertain if supply chain collaboration actually predict on time delivery in brewery industry. It on only considered collaboration measures and not integration measures
2) This study is restricted to brewery industry; other sectors like petroleum, agriculture could be investigated to ascertain if these dimensions are key predictors of performance.
3) Though the finding of this study may look holistic in nature. Perhaps, an independent study of each sample units could be carried out to ascertain if these four dimensions can actually predict performance in each category.

4) This study is also restricted to the downstream supply chain; the upstream (suppliers) supply chain could as well be investigated in future research to know if these dimensions are actually predictors.

5) This study is linked with vertical collaboration; perhaps future studies should try to explore horizontal collaboration.

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