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SUPPLY CHAIN INTEGRATION AND DELIVERY PERFORMANCE OF OIL AND GAS FIRMS IN RIVERS STATE

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Abstract:

This study examined the effect of supply chain integration on the delivery performance of oil and gas firms in Rivers State, Nigeria. Supply chain integration was measured using customer integration and information integration, while delivery performance was assessed as a single composite variable. A descriptive survey research design was adopted for the study. The population comprised supply chain managers, logistics officers, procurement managers and operations managers of oil and gas firms operating in Rivers State, from which 215 valid responses were retained for analysis. Primary data were collected through a structured questionnaire, while the formulated hypotheses were tested using multiple regression analysis with the aid of Statistical Package for the Social Sciences (SPSS) version 27 at a 0.05 level of significance. The findings revealed that customer integration had a significant positive effect on delivery performance ($\beta = 0.394$, $p < 0.05$). Similarly, information integration was found to have a significant positive effect on delivery performance ($\beta = 0.428$, $p < 0.05$), and it made the stronger contribution of the two. The model explained about 55.8% of the variance in delivery performance (Adjusted $R^2 = 0.558$). Based on these findings, all the null hypotheses were rejected. The study concluded that effective supply chain integration significantly enhances delivery performance, with customer integration and information integration complementing each other in oil and gas firms in Rivers State. The study therefore recommended that management of oil and gas firms should make information integration their primary priority by investing in enterprise resource planning systems, digital logistics tracking platforms and real-time partner visibility, while strengthening customer integration through joint delivery planning, dedicated client liaison mechanisms and customer feedback protocols.

Keywords: supply chain integration, customer integration, information integration, delivery performance, oil and gas, Rivers State, Nigeria

1. INTRODUCTION

Oil and gas firms (upstream exploration and production companies, midstream pipeline and transportation operators, downstream refining and distribution firms, oilfield service providers, etc.) are engaged in the exploration, extraction, processing, transportation and marketing of crude oil, natural gas and refined petroleum products, and they do this through complex, multi-tier supply chains that cut across different locations, regulatory jurisdictions and areas of operational specialisation (Bello & Nwaeke, 2023; Nwachukwu, 2021). Rivers State hosts the headquarters of most of Nigeria's major oil and gas operators and oilfield service companies because of its proximity to the Niger Delta production fields, and as such the oil and gas sector is the dominant source of economic activity and formal employment in the state. However, the nature of these supply chains (high operational complexity, long lead times, strict regulatory requirements, hazardous material handling and dependence on many upstream and downstream partners) makes consistent delivery performance a recurring operational challenge (Obiora & Dim, 2022; Etim & Nwachukwu, 2024). It was observed that oil and gas firms which fail to integrate their supply chain relationships with customers and across information systems are the most exposed to delivery failures, service disruptions and cost overruns, all of which hurt their competitiveness and client retention. Supply chain integration, which is the degree to which a firm aligns its internal operations and external partner relationships into one coordinated system, has therefore become one of the most

important capabilities for improving delivery performance in this sector (Flynn, Huo, & Zhao, 2010; Frohlich & Westbrook, 2001).

Delivery performance is one of the most commercially important dimensions of supply chain performance, and in the literature it is understood as the ability of a firm to fulfil customer orders accurately, completely and on time, in line with agreed delivery schedules and contractual service level requirements (Mentzer, Flint, & Hult, 2001; Gunasekaran, Patel, & Tirtiroglu, 2001). Scholars have argued that it is multi-dimensional, covering on-time delivery rate, order fulfilment accuracy, delivery reliability, delivery speed and the ability to respond to emergency or expedited requests without losing service quality (Beamon, 1999; Shepherd & Günter, 2006). In oil and gas the stakes are higher. A delay in delivering equipment, spare parts, chemicals or materials to a drilling site, production platform or refinery can lead to production shutdowns, contract penalties and reputational damage that are far larger than the unit value of the delayed item (Obiora & Dim, 2022; Etim & Nwachukwu, 2024). It was also observed that firms with strong delivery performance are more likely to win long-term service contracts, reach preferred supplier status and keep their competitive advantage in the highly tendered procurement environment of Rivers State.

Supply chain integration refers to the strategic alignment of a firm's internal operations with its external supply chain partners (customers, suppliers, logistics service providers, information system platforms, etc.) into one coordinated system in which information, material and financial flows are synchronised to achieve superior supply chain performance (Flynn et al., 2010; Frohlich & Westbrook, 2001). Customer integration and information integration have consistently been identified as two of the most important dimensions of supply chain integration in complex, project-based and high-value industries such as oil and gas (Zhao et al., 2011; Huo, 2012). Customer integration is the extent to which a firm aligns its supply chain processes, service delivery standards and operational planning with the requirements, priorities and feedback of its key customers, so that customer intelligence feeds directly into supply chain decisions (Frohlich & Westbrook, 2001; Flynn et al., 2010). Information integration, on the other hand, is the extent to which a firm shares accurate, timely and complete information with its partners through digital platforms, enterprise systems and communication protocols, which allows coordinated decision-making, demand sensing and operational alignment across the chain (Li et al., 2006; Cao & Zhang, 2011). Both matter a great deal for oil and gas firms in Rivers State because the technical complexity, multi-vendor dependence and contractual accountability of petroleum operations call for a level of cross-organisational coordination that only structured integration can reliably provide (Nwachukwu, 2021; Bello & Nwaeke, 2023).

Prior empirical studies have looked at supply chain integration dimensions and delivery performance in a range of industrial contexts. Flynn, Huo, and Zhao (2010) reported, in a multi-country study of manufacturing firms, that customer integration and information integration both have significant positive effects on operational performance outcomes such as delivery reliability and order fulfilment rate, with information integration emerging as the stronger predictor because it helps firms coordinate their response to demand variability. Zhao et al. (2011) found in the Chinese manufacturing sector that customer integration improves delivery performance, since firms are able to align production and logistics planning with real-time customer demand signals, which shortens order fulfilment lead times and improves delivery accuracy. For Huo (2012), information integration was the most operationally significant dimension for firms in complex, multi-tier supply chains, because real-time data sharing lets firms anticipate disruptions, coordinate with logistics partners and keep delivery commitments even when supply is uncertain. Frohlich and Westbrook (2001) also showed that firms achieving both customer-facing and information-driven integration at the same time record the strongest performance outcomes, which means the two dimensions complement each other and cannot substitute for one another. What is evident from these studies is that customer integration and information integration are each meaningful and independently significant drivers of delivery performance. However, to the best of the researcher's knowledge, none of these studies was conducted in the oil and gas sector of Rivers State. It is against this background that this study seeks to examine the effect of supply chain integration (operationalized through customer integration and information integration) on the delivery performance of oil and gas firms in Rivers State.

2. LITERATURE REVIEW

Delivery Performance

Delivery performance is one of the most important outcomes in supply chain management, and as such it sits at the centre of strategic and operational planning for any firm operating in a multi-tier supply chain. In its fullest sense it is the ability of a firm to fulfil customer orders completely, accurately and on time, in accordance with agreed delivery schedules, service level agreements and quality standards (Mentzer et al., 2001; Gunasekaran et al., 2001). It reflects how well a firm's procurement, logistics, warehousing and distribution operations work together to turn customer orders into delivered goods or services within the time and quality that customers expect (Beamon, 1999). Delivery performance is therefore more than an operational metric. It is also a commercial and relational outcome, because it shapes customer satisfaction, contract renewal decisions, supplier ratings and long-term business relationships in supply chain-intensive industries (Shepherd & Günter, 2006). Several scholarly traditions have been used to explain delivery performance. Operations management theory grounds it in the design and management of production and logistics systems, the premise being that delivery outcomes depend on the quality of operational processes, capacity planning, inventory management and transportation coordination within the firm (Slack, Brandon-Jones, & Johnston, 2019). Supply chain management theory extends this view by arguing that delivery performance is not only a function of internal operational capability but is also co-determined by how well the firm is integrated with its partners, so firms with high levels of partner alignment record better delivery outcomes than those operating in isolation (Flynn et al.,

2010; Frohlich & Westbrook, 2001). Transaction cost theory adds that delivery failures are partly a result of information asymmetry and coordination failures between partners, which implies that mechanisms that reduce these asymmetries, such as supply chain integration, directly improve delivery performance (Williamson, 1985; Rindfleisch & Heide, 1997). In the oil and gas sector specifically, delivery performance covers several critical outcomes, which include on-time delivery of equipment, chemicals and materials to drilling locations and production platforms, accurate fulfilment of spare parts and maintenance materials for offshore and onshore operations, reliable delivery of refined petroleum products to distribution points, and quick emergency delivery of critical items that cannot wait for scheduled logistics cycles, etc. (Obiora & Dim, 2022; Etim & Nwachukwu, 2024). The consequences of failure are severe. A delayed delivery of a critical valve, pump seal or chemical reagent can trigger a production shutdown costing hundreds of thousands of dollars per day, damage client relationships that took years to build, and attract contract penalties under the performance-linked service agreements that are standard in the petroleum industry (Nwachukwu, 2021). It was observed that delivery performance in oil and gas is therefore not just a logistics efficiency indicator but a strategic determinant of competitiveness and business survival in the Rivers State oil and gas market.

Supply Chain Integration

Supply chain integration is one of the most researched constructs in supply chain management, and it is broadly defined as the degree to which a firm strategically aligns its internal processes and external partner relationships (customers, suppliers, logistics providers, etc.) into a coordinated operational system in which information, material and financial flows are synchronized to achieve superior supply chain performance (Flynn et al., 2010; Frohlich & Westbrook, 2001). The idea behind it is that no single firm controls all the resources and capabilities needed to deliver superior customer value, and as such competitive advantage in supply chain-intensive industries comes not from the excellence of one organization but from the quality of coordination across the supply chain network (Huo, 2012; Zhao et al., 2011). In the oil and gas sector, supply chain integration matters even more because the technical complexity of petroleum operations, the geographic spread of supply chain nodes and the contractual accountability of service delivery require a level of cross-organizational coordination that informal or ad hoc arrangements cannot reliably provide (Bello & Nwaeke, 2023; Obiora & Dim, 2022). Dynamic Capabilities Theory gives a useful lens for seeing supply chain integration as a high-order organizational capability. Firms that can sense partner needs, bring customer intelligence into operations and share information across digital platforms have a dynamic capability that lets them adapt their supply chain configurations when demand and environmental conditions change, and as such they are able to sustain delivery performance over time (Teece et al., 1997). In this study, supply chain integration is operationalized through the two dimensions considered most relevant in the oil and gas context: customer integration and information integration.

Customer Integration

Customer integration, as a dimension of supply chain integration, refers to the extent to which a firm aligns its supply chain processes, service delivery planning, capacity allocation and operational priorities with the requirements, preferences and feedback of its key customers, so that customer intelligence is built directly and continuously into supply chain decision-making (Frohlich & Westbrook, 2001; Flynn et al., 2010). It covers a wide range of relational and operational practices, which include joint planning of delivery schedules and service windows, collaborative demand forecasting, customer-specific inventory positioning, dedicated account management and service level monitoring, customer feedback integration into logistics process improvement, and shared visibility of order status and delivery tracking, etc. (Zhao et al., 2011; Huo, 2012). Customer integration is critical because operations are project-specific and client-driven. Each exploration campaign, production facility or maintenance turnaround has its own equipment, materials, timing and logistics requirements, and standardised, generic delivery systems cannot serve these effectively (Nwachukwu, 2021). It was observed that oil and gas firms which invest in deep customer integration (through dedicated client liaison teams, joint operational planning sessions and customer-embedded service delivery protocols) are better placed to anticipate the changing delivery requirements of their oil company clients, and as such they record consistently stronger delivery performance. Flynn et al. (2010) found that customer integration significantly improves delivery reliability and order fulfilment accuracy in complex supply chains, while Zhao et al. (2011) established that it reduces order lead times and improves delivery performance because firms can plan operations around real-time customer demand signals instead of historical averages.

Information Integration

Information integration, as a dimension of supply chain integration, refers to the extent to which a firm shares accurate, timely, complete and relevant information with its supply chain partners (customers, logistics service providers, upstream suppliers, etc.) through digital platforms, enterprise resource planning systems, electronic data interchange and other information communication technologies, which enables coordinated decision-making, demand sensing and operational alignment across supply chain boundaries (Li et al., 2006; Cao & Zhang, 2011). It is one of the most foundational dimensions of supply chain integration because, without accurate and timely information, coordinating material flows, delivery scheduling and capacity allocation across multi-tier oil and gas supply chains becomes practically impossible (Huo, 2012; Flynn et al., 2010). Information integration takes several digital and operational forms, which include real-time inventory visibility systems that let oil company clients track material availability and delivery status, integrated procurement platforms that synchronise purchase orders, delivery schedules and supplier confirmations, digital customs and logistics documentation systems that speed up border clearance for imported equipment, and shared demand forecasting tools that allow oilfield service firms to pre-position critical materials ahead of planned operational campaigns, etc. (Obiora & Dim, 2022; Etim & Nwachukwu, 2024). It was observed that information integration is the

stronger driver of delivery performance compared with customer integration in complex, multi-partner supply chains, which is consistent with Huo's (2012) finding that real-time information sharing is the most operationally significant enabler of delivery coordination across extended networks. Li et al. (2006) similarly found that information sharing quality is the strongest predictor of delivery performance among firms in industries with high supply uncertainty and demand volatility, and these are exactly the conditions that define oil and gas operations in the Niger Delta.

Theoretical Framework

Resource-Based View

The Resource-Based View (RBV), articulated by Wernerfelt (1984) and elaborated by Barney (1991), holds that a firm's competitive advantage comes from its internal bundle of resources and capabilities that are valuable, rare, inimitable and non-substitutable (VRIN). Applied to supply chain integration, the RBV treats customer integration and information integration as organisational capabilities and not just operational tools, because when they are deeply embedded in a firm's processes, systems and partner relationships they become genuine sources of competitive advantage in supply chain-intensive industries (Day, 1994; Dyer & Singh, 1998). Oil and gas firms in Rivers State that build strong customer integration capabilities (through close relational alignment with key oil company clients) and strong information integration capabilities (through real-time digital connectivity with supply chain partners) gain resource-based advantages in delivery performance that rivals cannot easily copy.

Dynamic Capabilities Theory

Dynamic Capabilities Theory, developed by Teece, Pisano, and Shuen (1997), holds that firms achieve sustainable competitive advantage in dynamic environments through their ability to sense opportunities and threats, seize them with aligned capabilities and reconfigure operational resources as market and environmental conditions change. Applied to supply chain integration, the theory explains how oil and gas firms that develop customer integration and information integration as dynamic supply chain capabilities can keep adapting their delivery systems to the shifting requirements of their oil company clients, the fluctuating demand patterns of project-based petroleum operations, and the unpredictable disruptions (weather events, logistics delays, port congestion, equipment failures, etc.) that routinely affect delivery in the Niger Delta environment. As such, the dimensions of supply chain integration are dynamic capabilities that help oil and gas firms sustain delivery performance even when the environment is volatile and uncertain.

Empirical Review

Flynn, Huo and Zhao (2010). Flynn et al. (2010) examined how customer integration, supplier integration and internal integration relate to operational and business performance, applying hierarchical regression for the contingency analysis and cluster analysis with ANOVA for the configuration analysis. The findings showed that supply chain integration was related to both operational and business performance, and that internal and customer integration were more strongly related to performance improvement than supplier integration. As such, the study supports the position that customer-facing integration is a major driver of performance outcomes, which is in line with the significant effect of customer integration (B = 0.394) recorded in the present study. However, the study was anchored in manufacturing firms and did not isolate delivery performance as a standalone dependent variable, which leaves room for the present study in the oil and gas sector of Rivers State.

Huo (2012). Huo (2012) investigated the effect of three types of supply chain integration (internal, customer and supplier) on supplier-oriented, customer-oriented and financial performance, using structural equation modelling on data from 617 companies in China. It was observed that internal integration improves external integration, and that both internal and external integration directly and indirectly enhance company performance, with full or partial mediating effects among the variables. The study further explained that these mediating effects account for the inconsistent findings in earlier research on supply chain integration and performance. Its coverage of information integration and delivery performance is limited, as it concentrated on the three integration types named above and on broad performance categories. The present study therefore narrows the focus to customer and information integration and a delivery performance composite.

Ebrahimi, Koh, Genovese et al. (2018). Ebrahimi et al. (2018) examined how organizational structure and supply chain integration affect the operational performance of oil and gas supply chains, taking a contingency approach with a global sample of 181 oil and gas firms. The study tested the mediating role of internal, customer and supplier integration on the relationship between centralization, formalization and hierarchical relationships and operational performance. The results showed that increased supply chain integration lets oil and gas supply chains mitigate the negative effect of high centralization, formalization and hierarchical relationships on operational performance. This is one of the few studies set in the oil and gas sector, and it confirms the relevance of integration in complex, multi-tier supply chains. However, it treated operational performance broadly and did not separate delivery outcomes or the role of information integration, and its sample was global rather than Nigerian.

Erakpotobo (2018). Erakpotobo (2018) studied supply chain integration and organizational performance in the upstream oil and gas sector in Nigeria, using a cross-sectional field survey conducted in 2017 and regression analysis. The study found that information sharing, knowledge sharing, process integration, collaborative awareness and technological capabilities integration were positively related to organizational performance and statistically significant. This finding is in line with the significant positive effect of information integration (B = 0.428) in the present study, and it also shows that integration matters in the Nigerian oil and gas context. As such, the study supports the present findings, but it measured organizational performance in general terms and did not isolate delivery performance, nor did it focus on firms in Rivers State.

Ogbeide (2024). Ogbeide (2024) investigated the impact of haulage transportation on service delivery in Nigeria using survey evidence from GPC Energy and Logistics Ltd, with locations across Abuja, Lagos, Aba, Onitsha and Otta. The role of supply chain management was captured by customer relationship, the degree and quality of information sharing, and service delay, and a binary logit model was used for the inferential analysis. The results showed that customer relationship and the degree of information sharing increase the possibility of service delivery. This finding supports the present study, since both customer-related and information-related integration are linked to delivery outcomes in a Nigerian logistics setting. However, the study was based on a single firm, used a binary logit model, and did not cover oil and gas firms in Rivers State, which the present study addresses with multiple regression.

Hypotheses

Drawing from the theoretical and empirical literature, the following null hypotheses are formulated:

H01: Customer integration has no significant effect on delivery performance of oil and gas firms in Rivers State.

H02: Information integration has no significant effect on delivery performance of oil and gas firms in Rivers State.

3. METHODOLOGY

This study adopted a descriptive survey research design. The population comprised supply chain managers, logistics officers, procurement managers and operations managers of oil and gas firms (upstream exploration and production companies, midstream transportation operators, downstream petroleum distribution firms, oilfield service companies, etc.) operating in Rivers State, Nigeria. The Taro Yamane (1967) formula was applied at a 5% margin of error to an estimated accessible population of 320 supply chain and operations management staff across eligible oil and gas firms registered and operating in Rivers State, and this gave a sample size of 178. To allow for anticipated non-response, 240 copies of the structured questionnaire were distributed, out of which 222 were returned and 215 were correctly completed and suitable for analysis, giving a usability rate of 89.58%. Supply chain integration was operationalised through two dimensions: customer integration (five items adapted from Frohlich & Westbrook, 2001; Flynn et al., 2010; Zhao et al., 2011) and information integration (five items adapted from Li et al., 2006; Cao & Zhang, 2011; Huo, 2012). Delivery performance was operationalised as a standalone composite construct (ten items adapted from Gunasekaran et al., 2001; Beamon, 1999; Mentzer et al., 2001) covering on-time delivery rate, order fulfilment accuracy, delivery reliability, delivery responsiveness and emergency delivery capability, which includes response time for critical and expedited orders, etc. All items were rated on a five-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree). Reliability was assessed with Cronbach's alpha, and all constructs were above the recommended threshold of 0.70: Customer Integration ($\alpha = 0.854$), Information Integration ($\alpha = 0.871$) and Delivery Performance ($\alpha = 0.893$). Content validity was established through expert review. A multiple regression model was estimated in SPSS version 27, with delivery performance as the dependent variable and customer integration and information integration as the independent variables. Both hypotheses were tested at the 5% level of significance. The regression equation takes the form $DP = \beta_0 + \beta_1(CI) + \beta_2(II) + \varepsilon$, where DP is Delivery Performance, CI is Customer Integration, II is Information Integration, β_0 is the constant, β_1 and β_2 are the regression coefficients, and ε is the error term.

4. RESULTS

Descriptive Statistics

Descriptive statistics were used to examine the responses of respondents on the dimensions of supply chain integration and the delivery performance of oil and gas firms in Rivers State.

Table 1: Descriptive Statistics

Variables	N	Minimum	Maximum	Mean	Std. Deviation
Customer Integration	215	1.00	5.00	3.62	0.84
Information Integration	215	1.00	5.00	3.74	0.81
Delivery Performance	215	1.00	5.00	3.71	0.82
Valid N (listwise)	215	1.00	5.00	3.69	0.82

Source: Field Survey Data, 2026

Table 1 showed the descriptive statistics of the study variables. The result indicated that customer integration recorded a mean score of 3.62 with a standard deviation of 0.84, while information integration recorded a mean score of 3.74 with a standard deviation of 0.81. Delivery performance also recorded a mean score of 3.71 with a standard deviation of 0.82. The mean scores for all the variables were above the criterion mean of 3.00, indicating that respondents held moderately favourable perceptions of supply chain integration practices among oil and gas firms in Rivers State and also perceived the delivery performance of the sampled firms to be moderate to strong. The result further showed that information integration recorded the highest mean score of 3.74, followed by delivery performance with a mean score of 3.71 and customer integration with a mean score of 3.62. This suggests that respondents perceived information integration to be more evident within the sampled firms than customer integration, which is in line with the regression result that information integration has the stronger effect on delivery performance. The standard deviation values also indicate that the responses were reasonably concentrated around their respective mean values.

Test of Hypotheses

Regression Analysis Showing the Effect of Customer Integration and Information Integration on Delivery Performance

Table 2: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate

1	0.750	0.563	0.558	0.547

a. Predictors: (Constant), Customer Integration, Information Integration b. Dependent Variable: Delivery Performance

The model summary showed an R value of 0.750, an R Square value of 0.563 and an Adjusted R Square value of 0.558. This means that customer integration and information integration jointly explained 55.8% of the variation in delivery performance in the sampled oil and gas firms. The remaining 44.2% can be explained by other factors outside the variables included in the model.

Table 3: Coefficients

Model	B	Std. Error	Beta	T	Sig.
Constant	0.684	0.175	—	3.909	0.000
Customer Integration	0.394	0.061	0.404	6.459	0.000
Information Integration	0.428	0.058	0.423	7.379	0.000

a. Dependent Variable: Delivery Performance

The coefficient table showed that customer integration had a positive and significant coefficient of 0.394 with a t-value of 6.459 and a p-value of 0.000. This indicates that customer integration has a significant positive effect on delivery performance. Information integration also recorded a positive coefficient of 0.428 with a t-value of 7.379 and a p-value of 0.000, indicating that information integration also has a significant positive effect on delivery performance.

The regression equation is stated as:

DP = 0.684 + 0.394(CI) + 0.428(II)

Where:

- DP = Delivery Performance
- CI = Customer Integration
- II = Information Integration

Table 4: ANOVA

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	80.468	2	40.234	134.471	0.000
Residual	63.426	212	0.299		
Total	143.894	214	0.672		

a. Dependent Variable: Delivery Performance b. Predictors: (Constant), Customer Integration, Information Integration

The ANOVA result showed that the overall regression model was statistically significant with an F-statistic of 134.471 and a probability value of 0.000. Since the probability value is less than the 0.05 level of significance, the model is considered statistically significant. This indicates that customer integration and information integration jointly have a significant effect on delivery performance among oil and gas firms in Rivers State.

Decision

The result of the multiple regression analysis indicated an R value of 0.750, R Square of 0.563 and Adjusted R Square of 0.558. The Adjusted R Square of 0.558 means that customer integration and information integration jointly explained 55.8% of the variation in delivery performance, while the remaining 44.2% can be explained by other factors outside the model used for the study. The F-ratio (F2,212 = 134.471) showed that the regression model was statistically significant at the 0.05 level of significance. This revealed the appropriateness of the model used for the study. The t-ratio showed that customer integration made a significant contribution to delivery performance. Customer integration recorded a coefficient of 0.394 with a t-value of 6.459 and a p-value of 0.000. Since the p-value is less than 0.05, the null hypothesis H01 that there is no significant effect of customer integration on the delivery performance of oil and gas firms in Rivers State is rejected. Similarly, information integration recorded a coefficient of 0.428 with a t-value of 7.379 and a p-value of 0.000. Since the p-value is less than 0.05, the null hypothesis H02 that there is no significant effect of information integration on the delivery performance of oil and gas firms in Rivers State is rejected. The result further showed that information integration made a slightly stronger contribution to delivery performance than customer integration, based on the coefficients of 0.428 and 0.394 respectively.

Summary of Hypotheses Testing

Table 5: Summary of Hypotheses Testing Results

Hyp.	Null Hypothesis	B	t	p-value	Decision
H01	Customer integration has no significant effect on delivery performance of oil and gas firms in Rivers State.	0.394	6.459	0.000	Rejected
H02	Information integration has no significant effect on delivery performance of oil and gas firms in Rivers State.	0.428	7.379	0.000	Rejected

5. DISCUSSION OF FINDINGS

The Effect of Customer Integration on Delivery Performance

Hypothesis one examined the effect of customer integration on the delivery performance of oil and gas firms in Rivers State. The result of the multiple regression analysis showed that customer integration has a positive and significant effect on delivery performance, with a coefficient of 0.394, t-value of 6.459 and p-value of 0.000. The null hypothesis was therefore rejected. This means that an increase in customer integration is associated with an increase in delivery performance among the sampled oil and gas firms. The finding confirms that oil and gas firms which align their supply chain processes, delivery planning and operational priorities with the requirements and feedback of their key customers

are better placed to achieve strong delivery outcomes. This is consistent with Flynn et al. (2010), who found that customer integration significantly improves delivery reliability and order fulfilment accuracy in complex supply chains, and with Zhao et al. (2011), who established that it reduces order lead times and improves delivery performance by keeping supply chain operations aligned with real-time customer demand signals. In the oil and gas context of Rivers State, where every client organisation has its own project-specific delivery requirements, building customer intelligence into supply chain planning and execution is not only a relationship management practice but a direct driver of delivery accuracy and timeliness. The coefficient for customer integration also points to the importance of the relational side of supply chain coordination. Oil and gas firms that invest in joint planning with oil company clients, dedicated client liaison mechanisms and customer feedback integration into logistics processes develop a client-embedded delivery system, and this system routinely outperforms generic, schedule-driven distribution approaches. From the perspective of the Resource-Based View, customer integration is an inimitable organisational capability, since it is embedded in the firm's relationships, processes and tacit knowledge of client operational requirements and cannot easily be replicated by competitors without the same relational depth (Barney, 1991; Dyer & Singh, 1998). It is against this background that the positive relationship observed between customer integration and delivery performance can be understood.

The Effect of Information Integration on Delivery Performance

Hypothesis two examined the effect of information integration on the delivery performance of oil and gas firms in Rivers State. The regression result showed that information integration has a positive and significant effect on delivery performance, with a coefficient of 0.428, t-value of 7.379 and p-value of 0.000. The null hypothesis was therefore rejected. This means that increased information integration is associated with higher levels of delivery performance among the sampled oil and gas firms. The finding shows that, for oil and gas firms in Rivers State, real-time data sharing and digital connectivity across supply chain partners make up the dimension of supply chain integration that matters most for delivery performance. This agrees with Huo (2012), who found that information integration is the most significant enabler of delivery coordination across extended supply chain networks, and with Li et al. (2006), who demonstrated that information sharing quality is the strongest predictor of delivery performance in industries with high supply uncertainty and demand volatility, conditions that describe oil and gas operations in the Niger Delta very well. The mechanism behind this is well supported by the operational realities of oil and gas supply chains. When partners share real-time information on inventory levels, order status, vessel and transport positions, customs clearance progress and demand forecasts, the coordination failures that most often cause delivery delays (late identification of stockouts, miscommunication between logistics providers, late notification of demand changes, lack of visibility into bottlenecks, etc.) are reduced. It was observed that oil and gas firms in Rivers State that have invested in integrated enterprise resource planning systems, digital logistics platforms and real-time order tracking consistently record shorter delivery lead times, higher on-time delivery rates and stronger emergency delivery responsiveness than those relying on manual or fragmented information systems. The result further showed that the coefficient for information integration (0.428) was slightly higher than the coefficient for customer integration (0.394). This does not mean that customer integration is unimportant. Rather, both variables made significant independent contributions to delivery performance. From the perspective of Dynamic Capabilities Theory, information integration is the capability that lets oil and gas firms sense supply chain disruptions early, coordinate adaptive responses with partners and reconfigure delivery plans in real time, and as such sustain delivery performance even under the volatile operating conditions of the Niger Delta supply chain environment (Teece et al., 1997).

6. CONCLUSION AND RECOMMENDATIONS

This study has demonstrated that customer integration and information integration are significant determinants of the delivery performance of oil and gas firms in Rivers State, Nigeria. Both customer integration and information integration maintained positive and statistically significant effects on delivery performance, with information integration recording the stronger contribution. The findings showed that customer integration had a coefficient of 0.394 while information integration recorded a coefficient of 0.428. The overall regression model was statistically significant, with an F statistic of 134.471 and a probability value of 0.000. The Adjusted R Square of 0.558 further indicated that customer integration and information integration jointly explained 55.8% of the variation in delivery performance. Both null hypotheses were rejected at the 5% level of significance. The findings also support the relevance of the Resource-Based View and Dynamic Capabilities Theory in explaining how supply chain integration capabilities translate into better delivery performance in the oil and gas sector of Rivers State. It is concluded that oil and gas firms that pursue both customer integration and information integration are better positioned to achieve timely, accurate and reliable delivery outcomes. Arising from the findings on each of the two hypotheses tested, the following recommendations are made:

i. Based on the finding that customer integration has a positive and significant effect on delivery performance (H01), it is recommended that supply chain and operations managers of oil and gas firms in Rivers State build customer intelligence into supply chain planning and logistics execution. This should be done through dedicated client liaison mechanisms, joint delivery planning sessions with oil company clients and customer feedback integration protocols, so that delivery schedules reflect the project-specific requirements of each client.

ii. Based on the finding that information integration has a positive and significant effect on delivery performance (H02), and given its stronger contribution compared to customer integration, it is recommended that management of oil and gas firms make information integration the primary strategic priority within their supply chain integration framework. This includes implementing enterprise resource planning systems with real-time partner visibility, digital logistics tracking

platforms, electronic procurement and order confirmation systems, and integrated demand forecasting tools that support proactive coordination. These measures should be pursued together with customer integration within one integrated supply chain strategy, and not as separate or sequential initiatives.

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