



STRATEGIC ALLIANCES AND SUSTAINABLE COMPETITIVE ADVANTAGE: NAVIGATING ENVIRONMENTAL TURBULENCE IN NIGERIA'S DISRUPTIVE OIL AND GAS BUSINESS ECOSYSTEM

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ABSTRACT

Nigeria's oil and gas sector is confronted with significant environmental turbulence with consequential disruptive changes that practically vitiate the capacity of corporate organizations to maintain competitiveness. Navigating this volatile business horizon requires firms in this sector to – as a matter of corporate strategy – resort to tactical alliances and partnerships to acquire and boost adaptive resilience, thus provoking an intellectual debate on the empirical utility of this strategic initiative. This study examines the nexus between strategic alliances and sustainable competitive advantage of quoted oil and gas firms in Rivers State, Nigeria. *Strategic Alliance* - the explanatory variable - as herein conceptualized, trifurcates into three operational dimensions of *Technology*, *Marketing*, and *Supply Chain*. *Sustainable Competitive Advantage* – the Criterion variable - is on the other hand operationalized as *Innovation Capability* and *Operational Efficiency*. The study which is domiciled in the Resource - Based View and Relational View theories, adopts a cross-sectional survey research design. Spearman's rank correlation coefficient and partial correlation are utilized to analyze data obtained from 265 management staff across the eight qualifying firms administered with closed-ended questionnaire. Results reveal that all the three alliances have significant and positive relationships with the two measures of sustainable competitive advantage, with *technology alliance* as the strongest predictor of *innovation capability* and *marketing alliance* as the strongest determinant of *operational efficiency*. The results also reveal organizational agility as partially moderating the relationship between strategic alliances and sustainable competitive advantage. The study concludes, therefore, that strategic alliances supported by organizational agility have significant influence on sustainable competitive advantage. In the light of the findings, it recommends greater investment in technology partnerships, more effective collaborative marketing efforts, partnerships in the supply chain and agility-enhancing organizational structures.

Keywords: Technology Alliance, Marketing Alliance, Supply Chain Alliance, Sustainable Competitive Advantage, Organizational Agility, Innovation Capability, Operational Efficiency

1 INTRODUCTION

In the present dynamic business environment, organizations have been forced to have collaborative strategic approaches that will help to improve their long-term competitiveness and sustainability of their organization. However, the world's globalization, technological progress, customer expectations and the environmental uncertainties have made it difficult to only use internal resources to achieve competitiveness. For these reasons, strategic alliances have emerged as a significant way in which companies get access to complementary resources, exchange knowledge, and reinforce their organizations' capabilities (Barney, 1991). Dyer and Singh (1998) suggest that collaborative relationships can be used by organisations to develop relational advantages that are hard to replicate amongst competitors. In recent years, Zupanc and Logožar (2025) have also emphasized the strategic alliances to enhance the resilience of organizations, describing how they contribute to innovation, knowledge sharing, and the optimization of resources within the participating organizations.

Oil and gas companies quoted in Rivers State, Nigeria, operate in a highly competitive and uncertain business environment as they deal with volatile oil prices, technological advancements, disruption in the supply chain and growing regulatory requirements. All these challenges have increased the importance of collaborative solutions which increase the adaptability and performance of organizations. Kotabe and Helsen (2022) pointed out that strategic alliances provide companies with an added advantage to pool complementary resources and minimize risks associated with operations while increasing market prospects. Likewise, Porter (1985) argued that organization achieve and maintain a superior performance over a sustained period of time by continually making improvements in efficiency and differentiation. These realities have given strategic alliance between oil and gas companies to sustain their presence in the new energy market in Nigeria more relevance.

Technology alliances, marketing alliances and supply chain alliances are the typical expression of strategic alliances. Technology alliances encourage organization's access to more advanced technologies, research expertise and innovation capabilities, which enhance organizational learning (Lawson & Samson, 2001). Marketing alliances provide an increased reach to customers, brand visibility, and market expansion by engaging in joint marketing activities (Kotabe & Helsen, 2022). Similarly, in supply chain alliances, coordination between the supply chain partners and suppliers helps to lower the operation costs and enhance the service delivery (Min et al., 2005). From the results, Yang et al. (2015) concluded that these dimensions of the alliance are important to enhance firms' sustainable competitive capabilities.

1.1 Statement of the Problem

The ability of the firm to continually innovate and function efficiently amidst changes in the environment is an indicator of sustainable competitive advantage. The capability to innovate helps firms develop better products, services and processes to meet evolving market needs (Calantone et al., 2002; Wang & Ahmed, 2004), and operational efficiency helps improve productivity by effectively using resources and organizing business processes (Li et al., 2006; Flynn et al., 2010). But the benefits can only be achieved in the context of organizational agility, defined as the ability to "sense" changes in the environment and quickly re-align resources to meet new opportunities (Sharifi & Zhang, 1999). Thus, the researchers Tallon and Pinsonneault (2011) and Ciampi et al. (2021) highlighted that for the agile organizations, they can get more benefit from strategic alliance compared to other types of organizations, thus the interaction between strategic alliance and sustainable competitive advantage can be considered as a moderator.

Although there are existing Nigerian studies that revealed that strategic alliances enhance the outcome of an organisation, there are certain gaps that need to be identified. For instance, Horsfall and Wills (2021) focused on Supply Chain Collaboration and Sustainable Competitive Advantage of Energy Companies in Rivers State, Nigeria and Agabe and Akhigbe (2024) studied Strategic Alliance capability and Competitive Advantage of Telcos in Rivers State. In the same vein, Wokocha and Madukasi (2024) investigated strategic alliances and organizational growth of multinational oil and gas companies while Onwuchekwa (2025) studied the supply chain strategies and the effectiveness of oil and gas companies in Rivers State. While these studies contributed to understanding of the collaborative strategies, they mostly focused on the organizational growth, effectiveness and overall competitive advantage instead of sustainable competitive advantage based on innovation capability and operational efficiency. In addition, there was a lack of integrated dimensions of technology alliance, marketing alliance, and supply chain alliance in operationalizing the strategic alliances. Again, there is scarcity of empirical evidence on the effect of Strategic Alliance on Sustainable Competitive Advantage (SCA) of quoted Oil and Gas Companies in Rivers state through the lens of Organisational Agility. This study aims to fill these gaps by studying the effect of technology alliance, marketing alliance and supply chain alliance on the innovation capability and operational efficiency, taking the organizational agility as the moderating variable.

Aim and Objectives

The aim of this study is to examine the interrelationship between strategic alliance and sustainable competitive advantage of quoted oil and gas firms in Rivers State, Nigeria. Specifically, the objectives of this study are to:

- examine the nexus between technology alliance and innovation capability;
- investigate the nexus between marketing alliance and innovation capability;
- examine the nexus between supply chain alliance and innovation capability;
- examine the nexus between technology alliance and operational efficiency;
- investigate the nexus between marketing alliance and operational efficiency;
- examine the nexus between supply chain alliance and operational efficiency; and

1.2 Research Questions

Based on the above-stated specific objectives, the study poses the following research questions:

- Does any significant relationship exist between technology alliance and innovation capability of quoted oil and gas firms in Rivers State, Nigeria?
- Is there any significant relationship between marketing alliance and innovation capability of quoted oil and gas firms in Rivers State, Nigeria?
- Does supply chain alliance relate to significantly to innovation capability of quoted oil and gas firms in Rivers State, Nigeria?
- Is there any significant link between technology alliance and operational efficiency of quoted oil and gas firms in Rivers State, Nigeria?
- Does any significant relationship exist between marketing alliance and operational efficiency of quoted oil and gas firms in Rivers State, Nigeria?
- Is there any significant relationship between supply chain alliance and operational efficiency of quoted oil and gas firms in Rivers State, Nigeria?
- Does Organizational agility have any significant moderating effect in the association between strategic alliances and sustainable competitive advantage?

1.3 Hypotheses

In consonance with the research questions posed above, the underlisted research hypotheses are formulated in null forms:

- H01: Technology Alliance does not significantly relate to innovation capability of quoted oil and gas firms in Rivers State, Nigeria.
- H02: Marketing Alliance does not significantly relate to Innovation Capability of quoted oil and gas firms in Rivers State, Nigeria.
- H03: Supply Chain Alliance does not significantly relate to innovation capability of quoted oil and gas firms in Rivers State, Nigeria.
- H04: Technology alliance does not significantly relate to operational efficiency of quoted oil and gas firms in Rivers State, Nigeria.
- H05: Marketing alliance does not significantly relate to operational efficiency of quoted oil and gas firms in Rivers State, Nigeria.
- H06: Supply Chain Alliance does not significantly relate to Operational Efficiency of quoted oil and gas firms in Rivers State, Nigeria.
- H07: Organizational Agility does not moderate the association between Strategic Alliance and Sustainable competitive advantage

2 LITERATURE REVIEW

2.1 Conceptual Framework

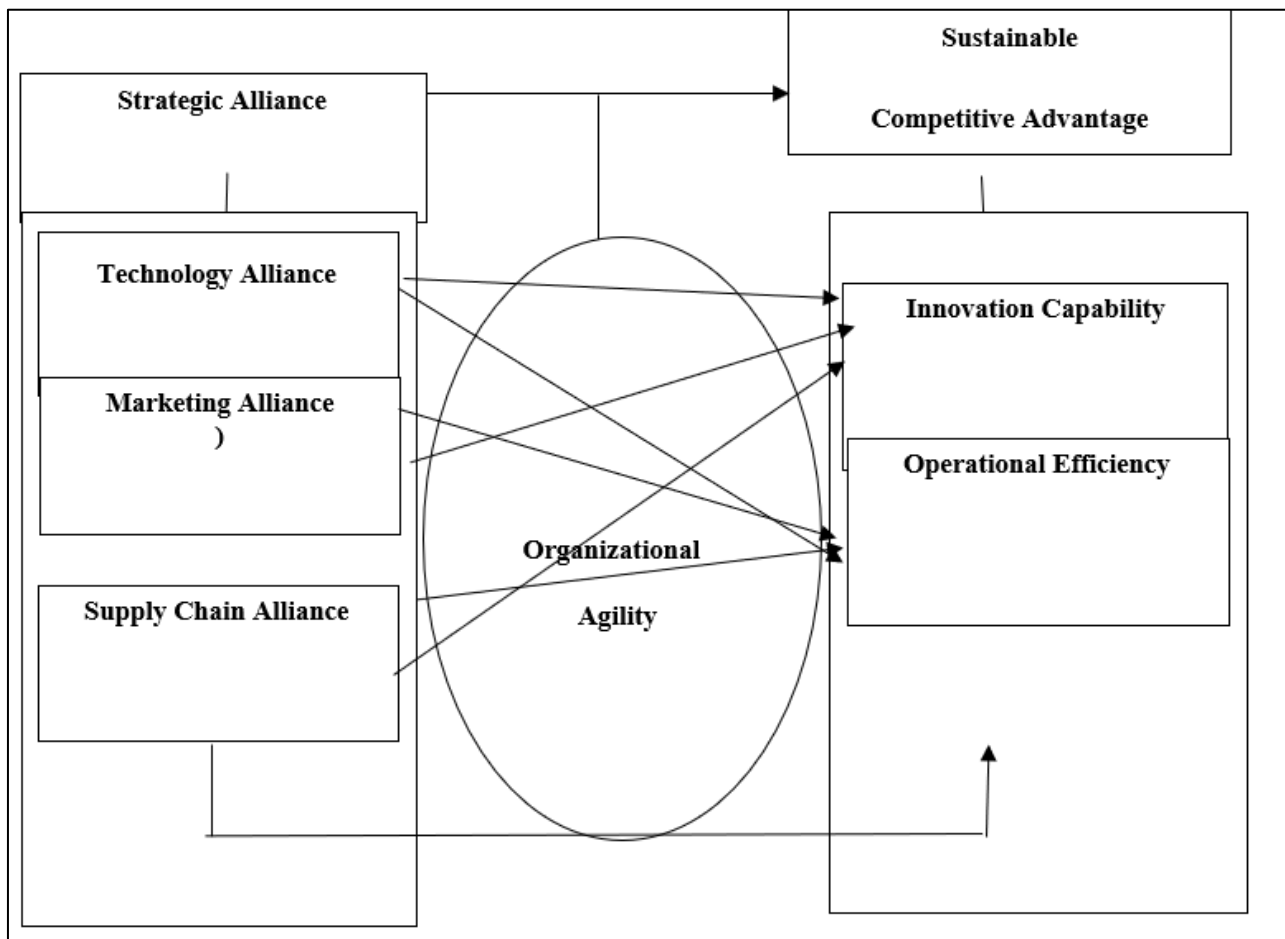


Figure 1: Conceptual Framework showing the link between Strategic Alliance and Sustainable Competitive Advantage

Source: Adapted from Tan and Adejuwon (2024), Okoh et al., (2025), Amah and Allagoa (2026)

2.1.1 Strategic Alliances

Strategic alliances are intentional and mutually beneficial strategic relationships that are voluntary and non-exclusive between two or more independent organizations in which they share complementary resources, capabilities, technologies or expertise to accomplish a common goal. In contrast to mergers and acquisitions, alliance partners continue to operate as distinct entities and simply work together in research and development, technology transfer, marketing, production, distribution and supply chain management. The main goal of strategic alliances is to do something that is difficult or expensive for the alliance partners to do alone by sharing risks, costs, knowledge and competencies (Ireland et al., 2002). Kotabe and Helsen (2022) claim that strategic alliances help companies enhance their competitive position by acquiring new markets, technologies and organizational capabilities. Recent reviews also highlight that strategic alliances have become important mechanisms of innovation, resilience and sustainable competitiveness of the organizations in very dynamic business environments.

Strategic alliances can be traced back to the realization that no one organization has all the resources and capabilities it needs to be a successful competitor in today's more complex markets. Out of the resource-based view, alliances create the opportunity for companies to gain access to valuable and complementary strategic resources that can contribute to their organization's capabilities and competitive position (Barney, 1991). In a similar way, the inter-firm relationship-oriented approach states that a competitive advantage can be found in the relation between firms, in the knowledge-sharing routines, the complementary combination of resources, the governance and the trust between the firms (Dyer & Singh, 1998). In addition to cost savings, current alliance literature shows that companies are using alliances to gain increased speed in innovation, better digital transformation, and greater resilience of their supply chains, and to more effectively cope with environmental uncertainty.

The nature of strategic alliances varies with the goals of the organizations. Alliances (technology, marketing, supply chain) help firms to conduct joint research, technological development, innovation, marketing, and sharing of distribution channels, promotion expertise and customer knowledge; supply chain alliance helps firms to coordinate the supplier, manufacturer, logistics firms, distributors and helps to enhance the operational performance (Min et al., 2005). According to Yang et al. (2015), these alliance dimensions support to the learning and innovation capability of the organizations by integrating and complementing resources and knowledge. As a result, strategic alliances are increasingly recognized as strategic tools to obtain sustainable competitive advantage, as well as improve innovation, operational efficiency and organizational adaptability in industries where change is a constant occurrence, including the oil and gas sector (Zupanc & Logožar, 2025; Kotabe & Helsen, 2022).

2.1.2 Sustainable Competitive Advantage

Sustainable competitive advantage is achieved when an organization is able to outperform other organizations with the resources, capabilities, and competencies that are valuable, rare, difficult to imitate and well-organized. Temporary competitive advantage can be easily reproduced by rivals, but sustainable competitive advantage allows firms to have a competitive advantage over rivals even after changes in the business environment (Barney, 1991). According to Porter (1985), organisations that are able to sustain competitive advantage will be cost leaders, differentiators or focusers that create superior customer value. But, there is a growing focus in the strategic management literature that sustaining competitive advantage is not only about positioning in the market but also the capacity of the organization to constantly update and renew its strategic capabilities to align with changes in the environment (Grant, 2022). As a result, sustainable competitive advantage is now a dynamic phenomenon in which organizations developing resources, learning and innovating new ways to operate, and carrying out operations effectively and efficiently are all key pieces of the puzzle to long-term success (Teece, 2018; Barney, 2021).

Nowadays, organizations have understood that capabilities, which help them adapt, innovate and use resources effectively, are the basis for sustainable competitive advantage, not just physical resources. In dynamic markets and a rapidly changing technology, digital transformation and growing customer expectations are forcing companies to constantly develop their products and services and transform their internal processes in order to stay competitive (Teece, 2018). Wang and Ahmed (2004) asserted that the firm's organizational capabilities are the ability to allocate resources effectively in order to accomplish strategic goals and Grant (2022) contended that firms remain competitive by continuously renewing capabilities and strategic flexibility. Recent research also shows that companies with more developed innovations and efficient operational systems are more resilient, adaptable, and able to better perform on the market than companies that mostly rely on tangible resources (Musa et al., 2024; Zupanc & Logožar, 2025).

For this research, sustainable competitive advantage is defined as innovation capability and operation efficiency. Innovation capability is defined as the ability of an organization to generate, adopt and commercialize new ideas, technologies, products and processes to create value and improve its competitive position (Lawson & Samson, 2001). Further, Calantone et al. (2002) interpreted that companies that have high innovation capability are more responsive about the impact of changes in customers' needs and technological development. On the other hand, operational efficiency is related with the organization's capability of optimizing resources, reducing operational costs, enhancing quality and productivity along the value chain (Li et al., 2006). Flynn et al. (2010) proved that the operational efficiency leads to better performance of the organization because of better coordination and integration of supply chain. Therefore, companies that can enhance innovation capacity and operational efficiency together stand a better chance of acquiring sustainable competitive advantage in an industry with high competition like the Nigerian oil and gas industry (Porter, 1985; Musa et al., 2024).

2.2 Theoretical Framework

2.2.1 Resource-Based View Theory

One of the most influential theories in the explanation of the achievement and maintenance of competitive advantage is the resource-based view (RBV). This theory was first put forward by Wernerfelt (1984) and subsequently developed by Barney (1991) who claimed that the firm's internal resources and capabilities play an important role in determining the firm's performance in addition to the market conditions. The theory states that a firm achieves sustainable competitive advantage if it has resources that are valuable, rare, inimitable and non-substitutable (VRIN). These include technological expertise, organizational knowledge, managerial capabilities, innovation competencies, and collaborative relationships, which are difficult for other companies to obtain or duplicate (Barney, 1991). Recent literature has a greater focus on the fact that the strategic resources of firms have to be constantly developed and reconfigured to stay competitive in dynamic business environments (Barney, 2021; Grant, 2022).

The resource-based view is very relevant to the current study as alliances are a way for the quoted oil and gas companies to gain access to complementary resources and/or capabilities which may not be available in the firm. Technology alliances can help to gain access to new or improved technologies and specific knowledge, marketing alliances can help

in understanding the market and accessing customer networks and supply chain alliances can help to improve logistics coordination and abilities (Kotabe & Helsen, 2022). These cooperative schemes increase innovation capability and operation efficiency that are used as the indicators of sustainable competitive advantage in this study. The theory also suggests that an agile organization enhances the firm's capacity to integrate, deploy, and exploit the resources it gains from alliances in a cost-effective way when the environment changes. Hence, the theoretical underpinnings of the resource-based view is very helpful in understanding the role of strategic alliances in attaining sustainable competitive advantage by quoted oil and gas companies in Rivers State, Nigeria (Zupanc & Logožar, 2025; Musa et al., 2024).

2.2.2 Relational View Theory

Dyer and Singh (1998) developed a theory of relational view that explains how organizations can achieve competitive advantage not only by their resources but also by their interorganizational relationship. The theory suggests that relational rents stems from collaborative partnerships, which are supernormal returns generated by the alliance partners as they combine complementary resources, share knowledge, trust and coordinate through appropriate governance structures. The relational view does not like the resource-based view is primarily interested in internal organizational resources, but also considers that sustainable competitive advantage may also be found in strategic relationships which cannot be easily imitated (Dyer & Singh, 1998). Later research has further supported this theory and showed that collaborative networks contribute to organizational learning, innovation and operational excellence in a more and more interconnected business world (Lavie, 2006; Kale & Singh, 2009).

Considering that the independent variable of this study is strategic alliance, which is inherently related to cooperative relationships between organizations, the relational view theory is particularly suitable for this study. As for the forms of alliances, technology alliances promote joint research and knowledge sharing, marketing alliances involve joint marketing and value creation for customers, and supply chain alliances lead to better alliances among business partners in terms of coordination, information sharing, and resource integration (Min et al., 2005; Kotabe & Helsen, 2022). From these collaboration setups, companies gain more in innovation capability and operational efficiency than they would otherwise be able to do on their own. Moreover, organizational agility helps companies quickly leverage the knowledge and capabilities developed through strategic alliances to enhance the relational resources' role in sustainable competitive advantage (Ciampi et al., 2021). Thus, the relational view theory offers a sound theoretical basis of the relationships studied in this research on the quoted oil and gas companies in Rivers State, Nigeria (Yang et al., 2015; Zupanc & Logožar, 2025).

2.3 Empirical Review

Okoh et al., (2025) studied the impact of strategic alliances on the performance of selected supermarkets in Nigeria. The research design adopted was cross sectional survey research design, and the respondents selected were 10 leading supermarkets with their head office in the cities of Lagos and Abuja. The researchers used stratified random sampling and primary data were obtained by using a questionnaire with 5 Likert scale. The SPSS was used to perform descriptive statistics, correlation analysis and multiple regression analysis. The results from the regression indicated that collaborative problem-solving positively and significantly influenced the organizational performance. The knowledge sharing also had a significant and positive impact and the customer satisfaction positively and significantly affected the organizational performance.

Tan and Adejuwon (2024) examined the impact of strategic alliances on the performance of Federal Inland Revenue Service in Nigeria. The research was approached in a quantitative survey method and the primary data was collected using online questionnaires from the senior staff of the Federal Inland Revenue Service in the South-West Zone. The study involved 30 offices with the respondents selected by using purposive sampling technique with 279 respondents. The predictor variable was strategic alliance and the organizational performance was measured in terms of tax revenue generation, voluntary tax compliance and expansion of tax net. Simple percentages, means, standard deviations, correlation coefficients, t-tests, regression analysis and analysis of variance were used to analyse the data. The findings showed that strategic alliances positively and significantly affected the performance of Federal Inland Revenue Service. The regression coefficient also showed that strategic alliance significantly predicted the organizational performance.

The study conducted by Al-Tabbaa and Zahoor (2024) explored the link between alliance management capability and the internationalization of small and medium-sized enterprises (SMEs), focusing on the influence of incremental and radical co-innovation. This research was based on the premise that even when firms enter alliances, it is not sufficient to ensure better results unless they have the skills to coordinate alliance partners, manage the transfer of knowledge within the alliance, address disagreements, and integrate alliance goals. The researchers tested a model that related alliance management capability with two innovation pathways and then international expansion, with quantitative data collected from small and medium-sized enterprises. The direct and indirect relationships among the constructs were estimated using the method of structural equation modeling. Results showed that the alliance management capability positively reinforced incremental and radical co-innovation. Progressive developments of old products, technologies, and processes through incremental co-innovation and creation of fundamental new products and processes through

radical co-innovation were observed to rely on how complementary resources of co-innovating partners were combined. The internationalisation of small and medium-sized enterprises was driven by both innovation pathways, with the actual role played depending on the nature of internationalisation.

Dubey et al. (2024) studied the role of alliance management capability and digital transformation conjointly enhance dynamic capabilities of the supply chain and thereby the organizational performance during the crisis. The study was performed on the manufacturing firms of India, and the research design of the study was multi-method research, with the aim of both developing and empirically testing a framework based on the dynamic capabilities perspective. The quantitative aspect of the study utilized survey data gathered from 157 respondents from manufacturing industry in India. The model included the following factors: Alliance management capability, digital transformation, supply chain agility, supply chain adaptability, and organizational performance. Structural modelling was used to establish the direct and mediated relations between these constructs and further methodological procedures were added to enhance the rigor of the results. The findings showed that having alliance management capability helped to support digital transformation and further strengthened their supply chain capabilities. Digital transformation is a great contributor to the agility and adaptability of supply chains, which in turn boosted the performance of organizations in crisis.

Amah and Allagoa (2026) examined the relationship between **strategic orientation** and **sustainable competitive advantage** in food and beverage companies in Rivers State, Nigeria. **Sustainable competitive advantage**, their criterion variable, was assessed through three proxies - **differentiation advantage**, **operational excellence**, and **organizational responsiveness**. Employing a quantitative research design, data were collected from managers of selected food and beverage firms using structured closed-ended questionnaire. Kendall Rank Correlation and Partial Correlation analyses were utilized by the researchers to test three hypothesized relationships. Their findings revealed significant positive relationships between strategic orientation and the measures of sustainable competitive advantage. Strategic orientation enhanced differentiation, operational excellence, and responsiveness. The study concluded that strategic orientation substantially contributed to competitive sustainability in the dynamic food and beverage industry. Based on the study's findings, the authors recommended that firms foster long-term strategic vision to leverage the full potential of strategic leadership in sustaining competitiveness.

A study by Amah and Diri (2025) investigated the relationship between strategic foresight and operational performance of oil and gas firms in Rivers State. *Strategic Foresight*, the study's *predictor variable*, was operationalized as *Environmental Scanning* and *Strategic Choice* – two critical dimensions of corporate strategy. On the other hand, *Organisational Agility* and *Timely Delivery* was employed as proxies of *Operational Performance*, the *criterion variable*. The population of the study consisted of top and middle level managers of the six major oil and gas companies in Rivers State. Data obtained from all the 54 respondents in this category across the six firms studied were subjected to analysis and a total of four hypotheses tested, using Spearman Rank Order Correlation. Results indicated that the two dimensions of strategic foresight, namely *Environmental Scanning* and *Strategic Choice* both contributed significantly towards achieving higher operational performance of oil and gas firms in Rivers State as measured by the two proxies employed therein - *Organisational Agility* and *Timely Delivery*. The study concluded, therefore, that *Strategic Foresight* is a veritable management tool for enhancing operational performance being – as revealed by the results – a strong predictor of the latter

2.4 Gap in Literature

Although there are existing Nigerian studies that revealed that strategic alliances enhance the outcome of an organisation, there are certain gaps that need to be identified. For instance, Horsfall and Wills (2021) focused on Supply Chain Collaboration and Sustainable Competitive Advantage of Energy Companies in Rivers State, Nigeria and Agabe and Akhigbe (2024) studied Strategic Alliance capability and Competitive Advantage of Telcos in Rivers State. In the same vein, Wokocha and Madukasi (2024) investigated strategic alliances and organizational growth of multinational oil and gas companies while Onwuchekwa (2025) studied the supply chain strategies and the effectiveness of oil and gas companies in Rivers State. While these studies contributed to understanding of the collaborative strategies, they mostly focused on the organizational growth, effectiveness and overall competitive advantage instead of sustainable competitive advantage based on innovation capability and operational efficiency.

In addition, there was a lack of integrated dimensions of technology alliance, marketing alliance, and supply chain alliance in operationalizing the strategic alliances. Again, there is scarcity of empirical evidence on the effect of Strategic Alliance on Sustainable Competitive Advantage (SCA) of quoted Oil and Gas Companies in Rivers state through the lens of Organisational Agility. This study aims to fill these gaps by studying the effect of technology alliance, marketing alliance and supply chain alliance on the innovation capability and operational efficiency, taking the organizational agility as the moderating variable.

3 METHODOLOGY

The research design used was cross-sectional survey research. The design was suitable since the researcher was able to collect quantitative data from the respondents at a specific time and analyse the correlation between strategic alliances, sustainable competitive advantage and organisational agility without the manipulation of the study variables. The design was deemed appropriate for research on management, specifically in relation to hypothesis testing and the use of standardized questionnaires (Creswell & Creswell, 2023; Saunders et al., 2023). The research was based on the positivist philosophy. The objective of positivism is social phenomena can be measured objectively in terms of observable facts and empirical evidence. The philosophy was for using structured questionnaires and statistical procedures for testing hypotheses and establishing relationships among measurable variables (Creswell & Creswell, 2023; Saunders et al., 2023).

The study population consisted of 265 management staff of eight quoted oil and gas companies in Rivers State, Nigeria. These companies comprised 11 Plc, Aradel Holdings Plc, Conoil Plc, Eterna Plc, MRS Oil Nigeria Plc, Oando Plc, Seplat Energy Plc and TotalEnergies Marketing Nigeria Plc. The number of people was taken from the Human Resource Departments of each company in 2025 and included employees who had sufficient knowledge of alliance activities and organizational performance. Due to smallness and accessibility of the population, the census sampling technique was used. Therefore, there were 265 management employees as samples. The census approach removed sampling error due to selecting a fraction of the population and increased the representativeness of the results because all eligible respondents were given an opportunity to participate (Sekaran & Bougie, 2020). The study was conducted through primary data which was collected by using structured questionnaire technique from the respondents. The questionnaire used closed-ended items on a five-point Likert scale with strongly disagree to strongly agree. The data collected were of quantitative type since they indicated the respondents perception on the study variables.

Strategic alliances were used as the independent variable, and measured by technology alliance, marketing alliance, and supply chain alliance. The dependent variable was sustainable competitive advantage and was measured by innovation capability and operational efficiency. The moderating variable, organizational agility was measured by responsiveness, adaptability and flexibility indicators based on literature. The content and face validity were determined by expert assessment by the specialists in the fields of management and measurement. Cronbach's alpha coefficient was used for instrument reliability, and only the constructs with reliability coefficients $\geq$ the recommended level of 0.70 were used (Hair et al., 2022). Descriptive statistics such as mean, standard deviations, frequencies and percentages were used for data analysis. The bivariate hypotheses were tested using Spearman's rank correlation coefficient, as the data were ordinal, while the moderating effect of organizational agility was done at 0.05 level of significance using partial correlation analysis (Field, 2024).

4 ANALYSIS AND RESULTS

4.1 Results and Analyzes

Table 1: Questionnaire Distribution and Number Retrieval

S/No	Descriptions	Frequency	Percent
1	Questionnaires Distributed	265	100.0
2	Questionnaires Retrieved	234	88.3
3	Valid Questionnaires	216	81.5

Source: Field Survey, 2026

The distribution of questionnaires, and the rate of return for the study is given in Table 4.1. 265 management staff questionnaires were administered to the 100.0% of management staff members of the selected oil and gas quoted companies in Rivers State. A total of 234 copies of the questionnaires administered were retrieved (88.3% retrieval rate). Only, however, 216 (81.5% of the total number of questionnaires distributed) questionnaires were found to be properly completed and suitable for statistical analysis, while the remaining retrieved questionnaires were excluded because of incomplete questionnaires or inconsistent questionnaires. The valid response rate was 81.5% which was deemed sufficient for behavior and management research and above the minimum response rate suggested for survey-based research for reliable statistical analysis and hypothesis testing. The 216 responses that were valid were then used for all subsequent analyses performed in the study.

Table 2: Demographic Results

		Frequency	Percent	Valid Percent	Cumulative Percent
Gender	Female	97	44.9	44.9	44.9
	Male	119	55.1	100.0	100.0
	Total	216	100.0	100.0	
Age	20-35	36	16.7	16.7	16.7
	36-50	132	61.1	61.1	77.8
	51 and above	48	22.2	22.2	100.0
	Total	216	100.0	100.0	
Marital Status	Single	42	19.4	19.4	19.4
	Married	154	71.3	71.3	90.7
	Separated	11	5.1	5.1	95.8
	Divorced	9	4.2	4.2	100.0
	Total	216	100.0	100.0	
Educational Attainment	WAEC/OND	19	8.8	8.8	8.8
	HND/Bachelor	136	63.0	63.0	71.8
	Master and above	61	28.2	28.2	100.0
	Total	216	100.0	100.0	

Source: SPSS 25 Output

The demographic characteristics indicated in Table 4.2 shows that there were 119 males (55.1%) and 97 females (44.9%). The distribution shows that although the male employees marginally outnumbered the female employees, both male and female employees were adequately represented, which means that the responses were from both male and female management employees in the selected quoted oil and gas companies. In terms of age distribution, 36 (16.7%) respondents were aged between 20 and 35 years, 132 (61.1%) aged 36–50 years and 48 (22.2%) aged 51 years and above. Most of the respondents were in the age group 36-50 years and had vast organizational experience and professional expertise, making their answers more credible to questions regarding strategic alliances, organizational agility, and sustainable competitive advantage.

The marital status distribution also shows that 42 (19.4%) were single while 154 (71.3%) were married. In addition, 11 respondents (5.1%) were separated and 9 respondents (4.2%) were divorced. The large number of married respondents indicates that most of the respondents were mature people in stable career positions in their organization. Educational background also indicated that the respondents had the educational background needed to give informed answers. In particular, 19 (8.8%) of the respondents had West African Examination Council or Ordinary National Diploma, 136 (63.0%) had Higher National Diploma or bachelor's degree and 61 (28.2%) had master's degree or higher. The study's relatively high rate of tertiary education among the respondents suggests adequate educational competence to comprehend the items on the questionnaire and to give the appropriate information needed for the study.

Table 3: Strategic Alliance and Innovation Capability

Correlations						
			Innovation Capability	Technology Alliance	Marketing Alliance	Supply Chain Alliance
Spearman's rho	Innovation Capability	Correlation Coefficient	1.000	0.536**	0.416**	0.342**
		Sig. (2-tailed)	.	0.000	0.000	0.000
		N	216	216	216	216
	Technology Alliance	Correlation Coefficient	0.536**	1.000	0.535**	0.481**
		Sig. (2-tailed)	0.000	0.000	0.000	0.000
		N	216	216	216	216
	Marketing Alliance	Correlation Coefficient	.416**	0.535**	1.000	0.515**
		Sig. (2-tailed)	0.000	0.000	.	0.000
		N	216	216	216	216
	Supply Chain Alliance	Correlation Coefficient	0.342**	0.481**	0.515**	1.000
		Sig. (2-tailed)	0.000	0.000	0.000	.
		N	216	216	216	216
**. Correlation is significant at the 0.01 level (2-tailed).						

Source: SPSS 25 Output

The result of table 4.3 showed that the technology alliance had a positive correlation coefficient of 0.536 and the probability value was 0.000 with innovation capability. This suggests a moderate level of positive relationship between technology alliance and innovation capability which means that increase in technology alliance in the quoted oil and gas companies was accompanied by increase in the innovation capability. Marketing alliance also showed positive correlation coefficient of 0.416 with innovation capability with significance level of 0.000 which shows that there is statistically significant moderate positive relationship between marketing alliance and innovation capability. In addition, another positive correlation coefficient of 0.342 was found for supply chain alliances with innovation capability, also at the 0.01 level. The findings as a whole show that all three dimensions of strategic alliance showed positive relationships with innovation capability, as the dimension of technology alliance had the highest correlation coefficient, which means that it showed the highest relationship with innovation capability.

Table 4: Strategic Alliance and Operational Efficiency

Correlations						
			Operational Efficiency	Technology Alliance	Marketing Alliance	Supply Chain Alliance
Spearman's rho	Operational Efficiency	Correlation Coefficient	1.000	0.336**	0.568**	0.417**
		Sig. (2-tailed)	.	0.000	0.000	0.000
		N	216	216	216	216
	Technology Alliance	Correlation Coefficient	0.336**	1.000	0.536**	0.416**
		Sig. (2-tailed)	0.000	.	0.000	0.000
		N	216	216	216	216

	Marketing Alliance	Correlation Coefficient	0.568**	0.536**	1.000	0.535**
		Sig. (2-tailed)	0.000	0.000	.	0.000
		N	216	216	216	216
	Supply Chain Alliance	Correlation Coefficient	0.417**	0.416**	0.535**	1.000
		Sig. (2-tailed)	0.000	0.000	0.000	.
		N	216	216	216	216
**. Correlation is significant at the 0.01 level (2-tailed).						

Source: SPSS 25 Output

The results show that there is a positive correlation coefficient between technology alliance and operational efficiency of 0.336 and is statistically significant at 1% level ($p = 0.000$). The overall extent of the relationship was positive but rather weak when compared to the other dimensions of the alliance. The relationship of marketing alliance with operational efficiency had a correlation coefficient of 0.568 and probability value of 0.000 which was the highest. This result suggests that there was a moderately strong positive relationship, meaning the general increase in collaborative marketing activities were associated with the increased operational efficiency with the selected firms. Likewise, the third supply chain alliance dimension had a positive and statistically significant correlation coefficient with operational efficiency of 0.417.

Table 5: Partial Correlation Result

Correlations					
Control Variables			Sustainable Competitive Advantage	Strategic Alliance	Organizational Agility
-none- ^a	Sustainable Competitive Advantage	Correlation	1.000	.330	.266
		Significance (2-tailed)	.	.000	.000
		df	0	214	214
	Strategic Alliance	Correlation	.330	1.000	.605
		Significance (2-tailed)	.000	.	.000
		df	214	0	214
	Organizational Agility	Correlation	.266	.605	1.000
		Significance (2-tailed)	.000	.000	.
		df	214	214	0
Organizational Agility	Sustainable Competitive Advantage	Correlation	1.000	.326	
		Significance (2-tailed)	.	.000	
		df	0	213	
	Strategic Alliance	Correlation	.326	1.000	
		Significance (2-tailed)	.000	.	
		df	213	0	
a. Cells contain zero-order (Pearson) correlations.					

Source: SPSS 25 Output

Using partial correlation analysis, the moderating effect of organizational agility on the relationship between strategic alliance and sustainable competitive advantage was examined. The results of zero-order correlations showed that strategic alliance had a correlation coefficient of 0.330 with sustainable competitive advantage while organizational agility had a correlation coefficient of 0.266 with sustainable competitive advantage. The probability value for both relationships was less than 0.05, making both relationships significant at 0.05 level. Also, there was a relatively strong positive interrelationship between strategic alliance and organizational agility ($r = 0.605$), indicating that organizations with higher level strategic alliance capabilities also had higher level of organizational agility.

The relationship between strategic alliance and sustainable competitive advantage decreased slightly from 0.330 to 0.326 after the control of organizational agility. Though the reduction was not significant, it suggests that the agility of the organizations partly contributed to the relationship between strategic alliance and sustainable competitive advantage. This finding indicates that the relationship between strategic alliances and sustainable competitive advantage was partially moderated by organizational agility, hence, it did not change the nature of the relationship but made it more effective. Thus, more responsive, adaptable and flexible organizations were better able to transform alliance resources and alliance capabilities into innovation capability and operational efficiency.

5 DISCUSSION OF FINDINGS

Results from the Spearman's rank correlation analysis found that positive and statistically significant relationships existed between strategic alliances and its two dimensions of sustainable competitive advantage, which are innovation capability and operational efficiency. The results of the study showed that technology alliance ($\rho = 0.536$, $p = 0.000$), marketing alliance ($\rho = 0.416$, $p = 0.000$), and supply chain alliance ($\rho = 0.342$, $p = 0.000$) all had significant positive relationships with innovation capability. Likewise, technology alliance ($\rho = 0.336$, $p = 0.000$), marketing alliance ($\rho = 0.568$, $p = 0.000$) and supply chain alliance ($\rho = 0.417$, $p = 0.000$) had positive and significant relationship with operational efficiency. These results suggest that improvement in collaborative technological development, joint marketing and supply chain partnership increased the innovation capability and operational efficiency in the quoted oil and gas companies in Rivers State. The results agree with the resource-based view theory that organizations are able to gain sustainable competitive advantage if they can access, combine, and deploy valuable strategic resources and capabilities that competitors are unable to easily imitate (Barney, 1991; Grant, 2022).

Technology alliance has a positive association with innovation capability which indicates that firms with technology alliance had more capability to introduce new improved products, processes and operational systems. Technology partnerships provided access to complementary expertise, lowered the cost of innovation, and speeded up the learning of technology, enhancing organizations' innovative capacity. This is in line with the suggestion of Lawson and Samson (2001) that the ability to innovate can only be built up through learning in the organization and knowledge integration. It also aligns with the results of Al-Tabbaa and Zahoor (2024) who found that the alliance management capability had a significant positive impact on incremental and radical innovation through collaborative knowledge creation and sharing of resources between partner organisations. Additionally, the result is consistent with the evidence of Okafor et al. (2026) which revealed that technology strategic alliance also had a positive and significant effect on the performance of manufacturing firms in Ogun State, Nigeria, affirming the fact that technology strategic alliance is a way of enhancing the capability of an organization and its competitiveness.

The results also showed the marketing alliance had positive and significant relationship with innovation capability and operational efficiency. This relatively stronger relationship between marketing alliance and operational efficiency ($\rho = 0.568$) suggests that marketing alliance had strengthened the marketing intelligence, customer responsiveness, demand forecasting and coordination of resources within the organization which in turn improved the operational efficiency. Strategic Marketing Partnerships facilitated the exchange of customer data, enhanced distribution networks, and boosted service delivery, contributing to overall organizational efficiency. This result aligns with Kotabe and Helsen (2022) who posited that marketing alliances can lead to market expansion and organizational effectiveness by complementary competencies. The finding is also corroborated by the empirical evidence of Okafor et al., (2026) which found that marketing strategic alliance significantly affected the performance of manufacturing firms in Nigeria as compared to technology strategic alliance, which had a lesser influence on the firm's performance. Likewise, Okoh et al., (2025) reported that co-operation with knowledge sharing, customer satisfaction, and problem-solving among selected supermarkets in Nigeria positively and significantly affected the performance of the organization.

The positive and statistically significant relationships between supply chain alliance and innovation capability, as well as supply chain alliance and operational efficiency were also identified. This result suggests that partnership with suppliers, logistics service providers, and other value-chain actors improved the coordination of processes, allowed information exchange, minimized delays, and boosted organizational productivity. The positive relationship between SC alliance and operational efficiency of the supply chain indicates that effective supply chain management can help in efficient use of resources and deliver better services. The result agrees with Li et al. (2006) and Flynn et al. (2010) who

proposed that supply chain integration ensures that the organizations operate efficiently and share information effectively. The findings are also consistent with the research conducted by Dubey et al. (2024), who discovered that alliance management capability enhanced digital transformation, supply chain agility, and organizational performance by enabling companies to leverage their alliance resources to effectively respond to environmental disruptions. Their research found that flexible operational capability and effective knowledge integration enable the creation of more value in collaborative alliances.

The findings from the partial correlation revealed a moderating effect between strategic alliance and sustainable competitive advantage by organizational agility. Based on the zero-order correlation, it can be seen that the correlation value between strategic alliance and sustainable competitive advantage is $r = 0.330$, $p = 0.000$, which means there is a positive correlation between the two variables. But once organizational agility was controlled for, the correlation coefficient decreased slightly to 0.326, which means that organizational agility had some influence on the relationship observed. While the reduction was moderate, it indicates that there was a certain moderating effect, which means the agility of the organization improved the effectiveness of strategic alliances in the innovation capability and operational efficiency. Organisations with higher responsiveness, flexibility and adaptability were thus more able to convert the resources they acquired from the alliances into sustainable competitive advantage. This finding agrees with Sharifi and Zhang (1999) who believe that organizational agility is a way for firms to adapt quickly to changes in the environment through effective resource reconfiguration. It also corroborates the findings of Tallon and Pinsonneault (2011) who claimed that agility enhances the ability to convert strategic resources into better performance of the organization. More recently, Ciampi et al. (2021) stated that organizational agility plays a substantial role in strengthening the efficacy of collaboration, by boosting the ability of firms to adjust to technological and market adjustments. Thus, the present result shows that the incorporation of high level of organizational agility is necessary to achieve higher SCA for the formation of strategic alliance among the quoted oil and gas companies in Rivers State, Nigeria.

6 CONCLUSION

The study found that strategic alliances proved to have a positive effect on sustainable competitive advantage of the quoted oil and gas companies in Rivers State, Nigeria. For the impact on innovation capability, technology alliance had the highest impact, followed by marketing alliance and supply chain alliance. Marketing alliance had the highest impact on operational efficiency, then supply chain alliance, and technology alliance, in turn. The study also found that organizational agility partially mediated the relationship between strategic alliances and sustainable competitive advantage as it allowed firms to effectively utilize alliance resources and capabilities. Thus, ongoing investment in strategic alliances is key to long-term innovation capability and operational efficiency, as is organizational agility.

Limitations of the Study

This study was carried out on quoted oil and gas companies in Rivers State, Nigeria; the results, therefore, cannot be easily generalized across other sectors and geographical locations. The study also had a cross-sectional research design that meant that it couldn't possibly have examined how strategic alliances and sustainable competitive advantage developed over time, but rather only at one specific point in time. In addition, primary data was collected using structured questionnaire, and the results may have been influenced by the opinions of the respondents. Although the measures of ensuring confidentiality and anonymity of the respondents were implemented, there might still be response bias. Also, the study emphasized technology alliance, marketing alliance, supply chain alliance, innovation capability, operational efficiency and organizational agility; other organizational and environmental factors which might affect sustainable competitive advantage outside the scope of the study were left out.

Recommendations

Based on the results, the following recommendations are made:

- The management of the Quoted Oil and Gas Companies in Rivers State should focus on enhancing investment in the technology-based collaboration with research institutions, technology vendors, equipment manufacturers and digital solution providers. These collaborations should be centered on joint research and development, digital oilfield technologies, automation, predictive maintenance, and knowledge transfer programmes aimed at boosting the capabilities of the firms to develop innovative products, services, and processes.
- Improved co-operative marketing with distributors, strategic customers and marketing partners should be encouraged by the management of the oil and gas companies to enable them to share information about the market, coordinate demand forecasting, jointly run promotional programmes and jointly manage customer relationship. These will help in the sharing of these activities, thereby reducing resource wastages and making service delivery more efficient along the value chain.

- Management should have long-term contractual relationships with suppliers and service providers, and joint logistics planning, integrated supply chain partnerships and collaborative inventory management systems should be established. This will improve coordination, avert delays in procurement, help to control inventory and boost the reliability of the operation along the value chain.
- Management needs to build organizational agility through flexible organizational structures, faster decision making, investment on digital communication systems, and empowering employees to act quickly on the technological changes and the market. Through these initiatives companies will be able to benefit the most from strategic alliances.
- Management should create formal alliance management units that would have the authority to select partners, manage the alliance, monitor the alliance, resolve alliance conflicts and periodically review alliance projects. To make sure that alliance goals are met and maintained, measurable alliance performance indicators should be developed with such units in technology transfer, market expansion, innovation results, operational improvements, and knowledge sharing activities.
- Research incentives, technology development grants, local content partnerships, and digital infrastructure support should be provided as research and development policies to promote collaboration and innovation among quoted oil and gas companies by government agencies such as the Nigerian Upstream Petroleum Regulatory Commission and the Nigerian Midstream and Downstream Petroleum Regulatory Authority. These policy measures will enhance competition among firms, speed up technological development, and boost the international competitiveness of the Nigeria's oil and gas industry.

STATEMENTS ON COMPLIANCE WITH ETHICAL STANDARDS

Disclosure of conflict of interest

The authors declare no conflicts of interest regarding this manuscript

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

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