

## **THE ROLE OF COGNITIVE CAPITAL DEVELOPMENT IN THE STRATEGIC ALLIANCE SUCCESS OF OIL AND GAS SERVICING FIRMS IN BAYELSA STATE**

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### **ABSTRACT**

This study examined the role of cognitive capital development in the outcome of strategic alliance success (resource complementarity, mutual benefits, and collaboration). The study was designed as a correlational study, and utilised a quantitative methodology in its investigation. Data was generated using the structured questionnaire, which was administered to 42 management staff of 21 selected indigenous oil and gas servicing firms in Bayelsa State. Instrument validity was assessed using the content validity, and reliability assessed using the Cronbach alpha (0.70 benchmark). Three related null hypotheses were tested using the Structural Equation Modelling (SEM), specifically, the path analysis. The findings affirm to the significance of cognitive capital development in advancing strategic alliance success, specifically as it relates to resource complementarity, mutual benefits and collaboration. It was therefore concluded that the relationship between cognitive capital development and strategic alliance success of indigenous oil and gas firms in Bayelsa State is significant and positive; implying that actions tailored toward compliance and the aligning with overarching values, enhances the strategic alliance success of the indigenous oil and gas servicing firms. It is therefore recommended that indigenous oil and gas servicing firms build on ensuring compliance to overarching frameworks within their industry and context.

***Keywords: Cognitive capital development, strategic alliance success, resource complementarity, mutual benefits, collaboration, organisational learning.***

### **INTRODUCTION**

Business survival in today's dynamic global environment, can be considered a function of several factors, key among which is its ability to partner and utilise its business networks strategically to its benefit. Through such strategic alliances, organisations are afforded increased levels of flexibility, access to more resources and information, and can also leverage such alliances in bolstering their resilience in the face of change (Russo & Cesarani, 2017). Such operational forms, are crucial within highly unpredictable and volatile markets such as that of the Nigerian oil and gas industry. However, due to business exchanges and partnerships are fraught with breach, discontent and in most cases, fraud. Understandably, organisations often go extra miles in the validation of potential partners and in ensuring assets and fund security. Given the laxities in existing regulatory frameworks, most organisations within the Nigerian context, yet fall victims to fraudulent schemes (Ikechukwu, 2020; Eze & Okeowo, 2022). Hence, the achievement of strategic alliance success, poses a major concern, especially within the Nigerian oil and gas industry (Adebayo & Agboola, 2019).

While most partnerships are fraught with distrust, leading to poor operational integration and the hoarding of information or resources; strategic alliance success ascribes to

partnerships that are trust-based, offer sincere support and willingly avail assets and resources. Unfortunately, such forms of partnerships or alliances are rare within the Nigerian oil and gas industry (Eze & Okeowo, 2022; Adebayo & Agboola, 2019). Report (Ikechuckwu, 2020) identify most alliances as exploitative, and self-seeking. Such situations are as a result of the lack of trust or the overly defensive stance of most companies engaged in partnerships. Ciambotti (2015) identified factors such as trust as stemming from feelings of understanding, shared values and interpretations of the context; all facets of an organisation's cognitive capital. Zheng (2010) identified cognitive capital as reflecting the extent of the organisation's embeddedness, through the expression of language, codes and ideologies. Research on the role of cognitive capital and its development in strategic alliance success is unfortunately scarce. This paper is a departure anchored on a knowledge and methodological gap in research on the variables, guided by the following research question: What is the relationship between cognitive capital development and the strategic alliance success of indigenous oil and gas servicing firms in Nigeria?

## **LITERATURE REVIEW**

### **Theoretical framework**

#### **Organisational Double-Loop Learning Theory**

Organisational learning is a process, detailing the organisations acquisition, transfer, and utilisation of knowledge such that enriches decision-making, contributes to the effective altering of the behaviour or disposition of the organisation within its market or environment. (Jain & Moreno, 2015) Developed by Chris Argyris in 1978, the theory of organisational learning expounds on the dynamic behaviour of organisations, which involves the generation, development or acquisition of knowledge and the application of knowledge in ways that equip them for the realities of their environment and also enables their achievement of objectives (Azmi, 2008; Argote, 2013). Argyris (1978) distinguished between the single-loop and the double-loop learning theory. According to Argyris (1978), while the single-loop addresses learning demonstrated through changes in behaviour and action, the double-loop emphasizes the underlying models, values and thought systems that shape or condition related actions or behaviour.

The organisational double-loop learning is adopted as the theoretical framework for this paper. This choice stems from its adequacy in explaining changes in values and functional models, in line with repositioning the organisation favourably, in view of the overarching values, practices and standards prevalent within its environment (Schilling & Kluge, 2009; Wellman, 2009). Unlike the single-loop learning which only identifies with shifts in actions and functions, the double-loop focuses on a deeper level of learning; proffering justifications for learning and the associated actions and behaviour that can be considered its outcome (Harrison, 2000). In this vein, the double-loop learning theory, serves as the premise for understanding the imperatives of modifying underlying organisational motives, policies and systems in order to truly adapt its cognitive processes to the dominant functional and operational features of the environment (Harrison, 2000). The double-loop learning theory, this way, clarifies on both why and how, organisations learn and adapt to new systems; especially when their validation and extent of embeddedness is premised on such.

#### **Cognitive Capital Development**

Trust is considered imperative to social and business connections. According to Knoke (2009) it determines the depth of any relationship and the extent to which partners are

willing to be vulnerable. Becker et al., (2023) identified trust as a fundamental and defining factor in all three dimensions of social capital, namely relational, cognitive and structural capital. The cognitive capital however, identifies trust as an outcome, unlike the relational and structural which identify trust as a basis. That is to say, the expression of cognitive capital through shared values, codes, knowledge and practices, garners trust and validation, which facilitates acceptance within the network. Stam et al. (2013) described cognitive capital as the organisation's capacity for shared meaning and interpretation prevalent within its network. It is the accumulation of knowledge, expertise and experience by an individual or organisation which enables its functionality and development Claridge (2018) posited that cognitive capital enhances the extent of the organisation's embeddedness, and its ability to build and sustain profitable links and connections within its environment; hence, developing cognitive capital, offers increased levels of integration and acceptance from the context or industry of the organisation.

Cognitive capital development, thus entails the actions, or processes of reinforcing context-based knowledge, and enabling a more informed disposition of the organisation towards its industry or environment. It is the process of learning and aligning processes and operational forms with dominant and overarching features in the environment or industry (Wang, 2011). Studies (Azam, 2017; Burhan et al., 2017; Rindermann & Thompson, 2011) indicate that collectives over time, generate systems that are peculiar to them; such that guide their interactions and in way, shapes the relationship climate. Wang (2011) posited that organisations that demonstrate proficiency or competence in the functionality of these systems or related behaviour, tend to assimilate or integrate better within such collectives. This corroborates the observations of scholars (Zheng, 2010; Stam et al., 2014) that the relatability and extent of organisational trust, draws on the evidence of behaviour or actions that are considered as mirroring or reflective of what is viewed as the norm, accepted or valid within the system or industry. This furthers the perception of the organisation as a embodying the central ideologies of the system in which it operates.

### **Strategic Alliance Success**

The concept of strategic alliance success differs from that of strategic alliance. The latter describes evidence of partnerships and cooperative ventures; whereas the former identifies with the actual achievement of the intended objectives and goals of such collaborations (Muteshi & Awino, 2018; Lavie et al., 2012). Strategic alliance success describes the extent to which partnering or joint enterprise activities and operations, yield intended strategic goals. That is to say, partners or alliance members, are able to not only work with or operate within networks, but are able to benefit from such networks; drawing resources, support and by that, build on the capacity of others within the network (Majid et al., 2021). Strategic alliances enrich the market posture of the organisation, facilitating efficiency and effectiveness through the support from partners. Muthoka et al. (2021) noted that networks and partnerships are crucial during turbulent periods and play significant roles in the survival and stability of business operations.

Related studies (Emami et al., 2022; Russo & Cesarani, 2017) show that the success of strategic alliances, extend beyond concerns of structure, governance and leadership. While these may also be considered pivotal, they only reflect an aspect of alliance success which concerned with functional and operational linkage. Al-Dmour et al. (2018) advocated the need for trust and value-based integration; such that assures that partnering organisations have a shared understanding of their environment, agree on priorities and are sincere about

their commitment to supporting and advancing or promoting partners shared interests. Al-Dmour et al. (2018) observed that structures and bureaucratic integration, enable the functionality and operational synergy of partners, however, where partners are insincere and lack the necessary level of trust, knowledge and other resources, will be hoarded and artificial bottlenecks enacted to frustrate responsibilities and promises. This reiterates the view (Majid et al., 2021) that partners can in most cases, deliberately sabotage the efforts or objectives of their shared ventures if there are trust concerns or if they view current partners as possible rivals or competitors in the future.

### **Cognitive Capital Development and Strategic Alliance Success**

Wang (2011) identified the shared meaning, understanding and interpretations, expressed within networks as fundamental to collaboration and partnership effectiveness. The experience of such shared position on practices, imprints on individual organisation, a sense of belonging but more importantly, a value for excellence and commitment to instituted and accepted standards. Wang (2011) argued that exchanges between organisations and within networks are shaped by the expectations these organisations hold of themselves and the extent to which they demonstrate behaviour or actions, considered as appropriate, or in line with industry norms. Scholars (Lavie et al., 2012; Muteshi & Awino, 2018) assert that partnering organisations have the responsibility and are obligated to not only learn, but demonstrate behaviour through language and the respect for others culture that affirms to their values for their partnership and commitment to ensuring its success.

Cognitive capital development, particularly through learning and a conscious effort toward expressing acceptable and suitable behaviour and practices, occasions validation from the network and trust from other members or firms within the industry (Wang, 2011). Within the Nigerian oil and gas industry, cognitive capital enriches the reputation of organisations through their adoption or industry emphasized technology and operational standards, security systems, and functional frameworks. This also involves compliance or adherence to industry regulatory frameworks and governance structures, in related areas such as employment or talent management, field operations, equipment maintenance and checks, procurement and purchases, and other related activities (Eze & Okeowo, 2022). The adoption of overarching and industry specified operational frameworks, contributes to industry integration and the fostering of relationships; thus, enhancing the outcomes of strategic alliance such as resource complementarity, mutual benefits and collaboration (Eze & Okeowo, 2022). However, scant empirical evidence is availed on the relationship between cognitive capital development and strategic alliance, particularly within the context of the oil and gas industry in Nigeria, hence, the following hypothetical statements are put forward:

HO<sub>1</sub>: There is no significant relationship between cognitive capital development and resource complementarity of indigenous oil and gas firms in Bayelsa State, Nigeria

HO<sub>2</sub>: There is no significant relationship between cognitive capital development and mutual benefits of indigenous oil and gas firms in Bayelsa State, Nigeria

HO<sub>3</sub>: There is no significant relationship between cognitive capital development and collaboration of indigenous oil and gas firms in Bayelsa State, Nigeria

### **METHODOLOGY**

This research is structured in line with assessing evidence of correlation between two dominant variables, cognitive capital development and strategic alliance success; hence a descriptive correlational design is adopted. The population for this research comprised of

21 selected oil and gas servicing companies in Baylesa State. This selection was based on three major criteria: (a) oil and gas servicing companies are indigenous to Baylesa (b) firms must have at least 20 operational tenures in Baylesa State, and (c) companies must have a minimum of 20 staff or employees in the organisation. Units of observation from the 21 firms comprised 2 purposively selected management staff from the rank of director, manager or supervisor, giving a total of 42 participants for the study. The structured questionnaire was adopted as the data collection instrument. Variables, cognitive capital development, and strategic alliance success (resource complementarity, mutual benefits, collaboration) are operationally measured drawing on adapted instruments utilised in previous research (Ciambotti & Palazzi, 2015; Wang, 2011; Ikechukwu, 2020). The 5-point Likert scale, ranked from 1 = strongly disagree to 5 strongly agree was adopted, with a mid-point of neutral. Goodness of measurement for the instruments was ascertained based on the content validity and the Cronbach alpha reliability test. All facets of the instrument are revealed to have Cronbach alpha coefficients higher than the adopted benchmark of 0.70 (Sekaran, 2003).

## DATA ANALYSIS AND FINDINGS

The result for the analysis of the data generated is presented in this section. From the 42 (100%) copies of the questionnaire disseminated, 39 (93%) copies were successfully retrieved, out of which 37 (88%) copies were observed to be in good condition and suitable for the analysis.

### Summary for univariate data analysis

The summary distribution for the data on the variables (table 1) draws on the analysis on their related indicators or observable properties. The data distribution for all three variables is assessed using descriptive tools addressing average positions on the variables.

Table 1: Summary for univariate data analysis

	N Statistic	Mean Statistic	Std. Deviation Statistic	Skewness Statistic	Std. Error	Kurtosis Statistic	Std. Error
Cognitive Development	37	3.1351	1.32234	-.095	.388	-1.942	.759
Resource Complementarity	37	3.1059	1.25779	-.164	.388	-2.057	.759
Mutual Benefits	37	3.2095	1.24298	-.191	.388	-2.035	.759
Collaboration	37	3.2399	1.38769	-.119	.388	-2.010	.759
Valid N (listwise)	37						

### Survey Data, 2025

The summary for the univariate data distribution for the variables, presents the variables as all having a moderate level of evidence. Result shows cognitive capital development as having a mean distribution of  $x = 3.1351$ ; indicating related practices aimed at advancing knowledge and the engagement of behaviour that can be considered as complying with established and acceptable standards and operational frameworks within the oil and gas industry. Measures of strategic alliance success, namely: resource complementarity ( $x = 3.1059$ ), mutual benefits ( $x = 3.2095$ ) and collaboration ( $x = 3.2399$ ). These values, reflect

a disposition which although not high, yet indicate or point to the substantiality of these factors within the oil and gas context of Bayelsa State, Nigeria.

### Test for hypotheses

The result for the test for the significance of the relationship between cognitive capital development and the measures of strategic alliance success is revealed in the figure 1. The test centred on the use of the path analysis in assessing the impact of cognitive capital development on the measures of strategic alliance success.

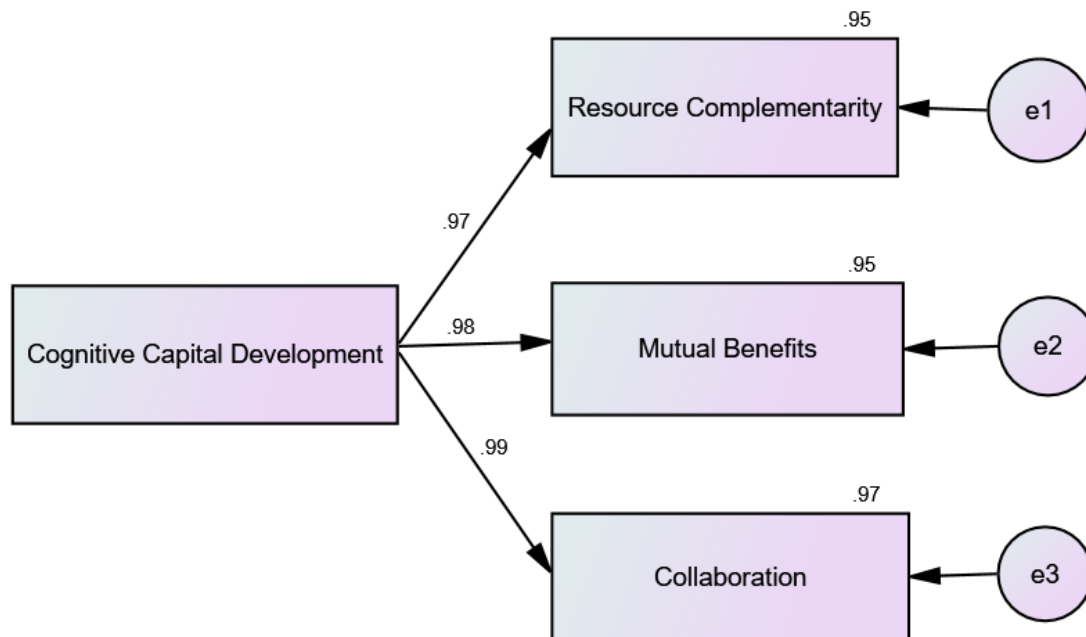


Figure 1. Path diagram showing influence of cognitive capital development on the measures of strategic alliance success

The Figure 1, illustrates the extent and direction of the influence of cognitive capital development on the measures of strategic alliance success (resource complementarity, mutual benefits and collaboration). In all three scenarios, cognitive capital development is revealed to play significant and positive roles, impacting on resource complementarity ( $\beta = 0.970$  and  $P < 0.05$ ), mutual benefits ( $\beta = 0.980$  and  $P < 0.05$ ) and collaboration ( $\beta = 0.990$  and  $P < 0.05$ ). From this, it is affirmed that cognitive capital development is an imperative in advancing strategic alliance success of indigenous oil and gas servicing firms in Bayelsa State. Going by the outcome of the test, the three null hypothetical statements are therefore rejected, as the findings reveal that:

- i. There is a significant relationship between cognitive capital development and resource complementarity of indigenous oil and gas firms in Bayelsa State, Nigeria
- ii. There is a significant relationship between cognitive capital development and mutual benefits of indigenous oil and gas firms in Bayelsa State, Nigeria
- iii. There is a significant relationship between cognitive capital development and collaboration of indigenous oil and gas firms in Bayelsa State, Nigeria

### DISCUSSION OF THE FINDINGS

Evidence from this research, establishes cognitive capital development important to strategic alliance success of indigenous oil and gas servicing firms in Bayelsa State. The related findings affirm the imperatives of operational compliance and shared interpretations in the enabling of more in-depth levels of networking, trust and as such success outcomes. The findings reiterate the views of scholars (Wang, 2011; Stam et al., 2014) on the role of cognitive capital in strengthening partnership ties and facilitating sincerity on the part of the partners. Under such conditions, partners tend to be more trusting and collaborative in the pursuit of shared goals and interests. From the lens of the organisational double-loop learning theory, organisations aiming to increase their embeddedness and integration within their networks, can focus on adapting or changing their operational models, and ensuring that their values, and practices are in sync with the overarching frameworks and features of their industry (Ikechukwu, 2020).

Eze and Okeowo (2022) posited that though compliance to established frameworks and the use or adoption of industry-emphasized operational models, firms can enhance their image, and foster trust in their exchange with others. This corroborates Wang's (2011) observation that cognitive capital is not just the expression of competence in a particular field or scope of knowledge, but the organisations expressed commitment to abiding by the tenets, regulations and precepts that guide and structure the relationships, operations and behaviour of firms within the industry. Such presents the organisation as "true" in its disposition to established standards and operational thresholds (Wang, 2011). This study thus offers implications for research, particularly in the area of organisational learning, and the need for management or the leadership of the indigenous oil and gas servicing firms in Nigeria, to build more on learning, and investing in developing operational models that align and are focused on the specific peculiarities of their environment, market and industry.

## **CONCLUSION AND RECOMMENDATION**

Following the finding of the study, it was affirmed that cognitive capital development significantly impacts the strategic alliance success of indigenous oil and gas servicing firms in Bayelsa State. It is therefore the conclusion of this paper that the relationship between cognitive capital development and strategic alliance success of indigenous oil and gas firms in Nigeria is significant and also positive, thus implying that through learning and the fostering of behaviour and actions that align with overarching frameworks of the environment and industry, indigenous oil and gas firms can enhance the outcome of their strategic alliances, specifically in line with resource complementarity, mutual benefits and collaboration. It is therefore recommended that indigenous oil and gas servicing firms be deliberate in their development of cognitive capital. This can be achieved through knowledge acquisition and the restructuring of policies and systems, in view of the peculiarities that shape or underpin their operational contexts of the organisation; that way, enabling compliance and enhanced integration.

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