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Subcontracting and Performance of Oil and Gas Industries in Nigeria (Study of Addax Petroleum Development Nigeria Limited)

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Abstract: The oil and gas industry is no doubt the nucleus of our mono-product Nigeria economy. The economy and operators, the industry are vulnerable to the characteristic turbulence of the product market in terms of volatile prices, marginal oil fields, extreme locations, new global business trends among others. Hence, subcontracting is one of the pragmatic management techniques that is gaining currency in literature and its being adopted by firms in the industry. Organisations attempt to concentrate more on their core competence production facts and engage other allied firms to argument the rest via subcontracting. The study adopted a survey research design. The study population is made up of (107) one hundred and seven professionals, contractors, consultants, project managers engaged by Addax Petroleum Development Nigeria Limited. The study considered and enumerated the total population as the sample for the study. Content validated structured questionnaire was used as the research instrument. The coefficient alpha of the scale items was 0.17. A combination of both descriptive and regression analysis were employed to analyse the data collected. The research findings depict that subcontracting positively affect the optimum performance of the firm and minimizes overhead running cost. However, for product quality assurance, contracting firms should not concede to the lowest price bidder. Also, it's imperative that the payment terms should be agreed upon and be favourable to both parties before the engagement activities commence.

Keywords: Subcontracting, Performance, Oil and Gas Industry, core competence.

I. Introduction

Business often require subcontractors for assistance on large, specialised or diversified projects when they do not have their sources on hand or need additional expertise. In these instances, hiring an expert to work on one or more short-term projects can beneficial in terms of cost quality and efficiency. According toTafti (2021) hiring subcontractors is much cost effective than bringing on new, few full-time employees. It also helps avoid risk by hiring a reliable and safe firm with substantial niche experience.

Notably, oil and gas is a huge industry giving employment to several thousands of people. And since the industry demands a lot of work from their employees, without which it would be difficult to cope it is a necessity for them to spread their work to other contractors to reduce the work burden on their existing employees. At the same time, the industry cant give permanent jobs to everyone. Thus would for sure put an extra burden on the employers as well as the hiring professionals, since they are the ones continuously recruiting candidates. Rather, they should aim to produce more amount of oil than putting their focus on hiring candidates (Barthelemy and Quelim, 2022). Whereas, contractors are often easier to hire and fire. So the industry can utilise them as and when there is a need to do so.

Importantly, the exploration, production and development of oil and gas requires that certain technical services be performed over oil field asset. Many of these services are outsourced to third-party contractors who perform them for a prescribed fee under an agreement known as an oil and gas service contract (Toluwase, 2018). At this juncture, a subcontractor is referred to an individual or a business that signs a contract to perform part or all of the obligations of another's contract. Such roles encompass the execution of jobs they are hired by the contractor for. Implying that, a subcontractor provides his or her services under a contract for service and is a legally building agreement between a business and a self-employed individual (Popoli, 2022).

Further, subcontracting is a project delivery business strategy used by leading contractors to deal with uncertainties in the oil and gas market and to transfer risks as financial risks, completion risks, and quality risks. Subcontracting reduces direct costs and overheads and allows main contractors to use more competitive smaller firms with lower overhead costs and better knowledge of the local market conditions, practices and procedures (Hart, 2022).

However, performance measurement in the oil and gas context is under-research. Some of the existing studies on supply chain performance for this industry concerns sustainability measures (Yusuf, 2020; Yusuf, 2018), varma, (2018), in particular, explored the prevalence of performance measures in the oil and gas supply chain. However, the research only focused on the downstream petroleum refining sector of the industry. More importantly, it did not investigate the impacts on organisational performance.

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The identification of poor subcontracting as one of the causes of poor project performance in previous studies has made it more vital to study the performance effect of subcontracting in the oil and gas industry. The purpose of this study is to identify the determinants of subcontracting performance and their impacts.

Research Objectives

The main objective of this study is to examine the effect of subcontracting and performance of Addax petroleum development Nigeria Limited. The specific objectives are to:

1. Examine how organisational contextual factors have significant effect on subcontracting practices in the Nigeria Oil and Gas Industry.
2. Examine how subcontracting have significant effect on the performance of Oil and Gas Industry in Nigeria.

Research Questions

1. Does organisational contextual factors have significant effect on subcontracting practices of Oil and Gas Industry.
2. Does subcontracting have significant effect on the performance of Oil and Gas Industry in Nigeria.

Research Hypotheses

1. Hypotheses one (H_{01}): Subcontracting practices does not have significant effect on organisational contextual factor.
2. Hypotheses two (H_{02}): Subcontracting does not have a significant effect on the performance (customer value, financial, process and learning and growth) of the Nigeria Oil and Gas Industry.

Scope of the Study

The study focus on Addax Petroleum Development Nigeria Limited and performance effects of subcontracting in the Nigerian Oil and Gas industry. Addax Petroleum Development Nigeria Limited is a subsidiary of Addax Petroleum which is involved in Oil and Gas exploration and production activities and is located at No. 32, OzumbaMbadiweavenue, Victoria Island Eti-Osa local government Lagos.

II. Literature Review

Subcontracting Defined

Since the period of internal revolution in Europe, countries have been obsessed with the need to introduce policies to boost their industrial base as industrialization has since become the most important singled for development (MacKenzie, 2000; Pai, 2004; Pellow& Park, 2002). Nigeria has not been an exception to these efforts because leaders are aware of the potential benefits of industrialization and have since independence experimented with various policies, programmes and strategies in a bid to achieve high level of industrialization (Ikeanyibe, 2006).

Going by this, the trend for most industries is to concentrate on their core business, i.e. the business function they are truly good at. As a solution to this, many have opted to sub-contracting some of their functions to service providers. Hence, subcontracting in its broadest meaning refers to the purchase of a part of a product or process from a different company (Kwork and Hompson, 1997). The term subcontracting has ambiguous definition depending on the industry from which it is viewed and the term 'subcontractor' are frequently used interchangeably (Lehtinen, 2001). Subcontractors are a vital component to both industrial and construction projects (Yin, Wang, Yu, Vi& Ni, 2009) because major aspects of industrial project works are performed by them (Andreas, Florence, & Jane 2009).

Guers, Martin and Wybo (2020) see subcontracting as one form of outsourcing. A report by the French Social and Economic Council distinguishes between subcontracting and outsourcing in terms of the length of the relationship and the transfer of ownership (activity substitution). It could, therefore, be said that subcontracting, unlike outsourcing, partially concerns the provision of a service in a given time and not necessarily over many years and – most importantly – does not imply that the activity was previously undertaken internally. Outsourcing is further distinguished from subcontracting in that it tends to lead to long-term change (by subtraction from the original company to a third party) in the boundaries of the company and the structural configuration of its resources.

It could be called a 'contractualised' and 'monetised' handover of a function or activity previously included in the internal mode of governance (Guers, Martin, &Wybo, 2020). According to Barthélemy (2021), the difference between subcontracting and outsourcing is based on the obligations of the service provider. Outsourcing is based on a commitment to provide results; the service

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provider takes entire responsibility for the management of the outsourced activity. In the case of subcontracting, the client is responsible for the management of the outsourced activity, and the service provider merely provides production resources.

Nevertheless, subcontractors are also obliged to produce results and can be seen as the intervention of an external agent on at least three levels: the definition of work, its resources and the procedures put in place to achieve a specified outcome (Guers, Martin, &Wybo, 2020). In some cases, highly-qualified subcontractors may participate in drawing up specifications (Ohnuma et al., 2000).

In a very general and fundamental way, this study aligns with the definition ofGuers et al. (2020) that see subcontracting as an operation that consists, for a company A, of the delegation to a company B of a task or a function that Company A does not want to or cannot undertake itself.

Types of Subcontractors

In project handlings, there are three main categories of subcontractors (CIDB, 2020), subcontractors can be identified as:

a. Specialist Subcontractors: these are subcontractors that perform specialist services on a project. The works are typically building or engineering services such as electrical, ventilating, plumbing, heating, and air-conditioning.

b. Generalist and Specialist Trade Subcontractors: this category generally consists of main contractors that use subcontracting as a means to get work when they are not under a contract. The subcontractors here offer general trade services or specialise on specific trades such as painting and brickwork; and

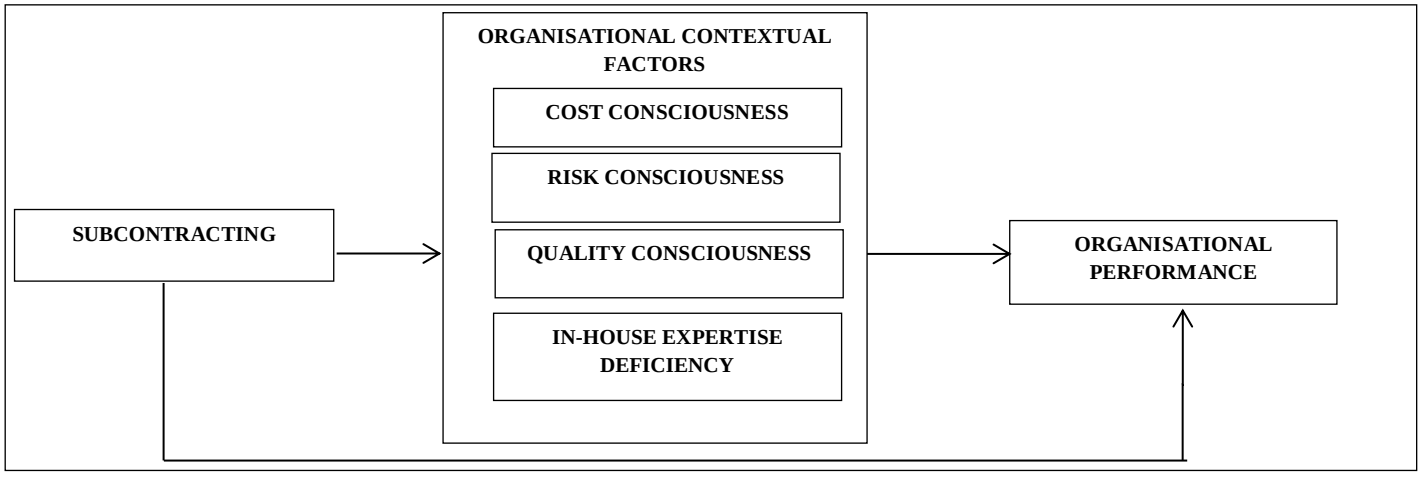
c. Labour-only Subcontractors; these are skilled tradesmen that mainly perform labour-only services on a project. The main contractor will provide the materials and supervision.

However, Mbachu (2021) revealed that subcontractors could also be categorised from a contractual point of view; the categories are as follows:

i. Selected subcontractors, these are subcontractors solicited from a list that has been recommended in the tender documents as potential subcontractors;

ii. Domestic subcontractors, these are hired by the main contractors to perform specific responsibilities; and

iii. Nominated subcontractors, these are subcontractors that are nominated by the client or client's agent to perform a specified task for the main contractor on a project.



2.2 Conceptual Framework for the Study

Source: Researcher, (2022).

2.3 Organisational Contextual Factors Influencing the use of subcontracting

According to Baudry (2020), subcontracting is mainly used to reduce or limit production costs. Business owners can create competition between different service providers to get better rates. This idea is not new; Williamson in 1975 looked at corporate collaboration through market relations from an economic point of view (Guers et al., 2020). Transaction costs theory (Ghertman 2003) argues that the organisation chooses between doing things themselves, or having them done,ending on the cost of acquiring a product or service on the market compared to the cost of internal production.

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Barthélemy and Donada (2021) noted that the use of subcontracting allowed organisations to be more flexible by transforming fixed costs into variable costs, which made it easier for them to cope with market fluctuations. According to Quélin and Duhamel (2002), the economic factor is closely related to the quality function. A company delegates not only for reasons of quality and efficiency but also cost. For some companies in some cases, subcontracting is primarily explained by performance issues in the workplace.

Finally, subcontracting can be a way to transfer risks and responsibilities associated with production to a third party. Statistics show that accidents occur more often among the employees of subcontractors (Algava&Amiras, 2019) compared to the employees of contractors, but it must not be forgotten that some companies outsource their riskier activities, particularly in the industrial sector (Guers et al., 2020; Thébaud-Mony 2000). Other organisations transfer social risks through subcontracting (Barthélemy, 2021).

In this case, it is a way to avoid excessively high social costs; the imposition of new constraints, loss of benefits, lower wages and lack of resources can result in disenchantment with the organisation. Subcontracting can enable the company, in deteriorating market conditions, to take measures that affect subcontractor negatively without having to deal with the consequences. The action is not an intentional process, but an adjustment mechanism in response to market fluctuations.

In addition to these quantitative, qualitative and social advantages of subcontracting, Guers et al. (2020) added strategic and opportunistic motivation. These concern situations where the company is faced with uncertainty concerning the market or its products and wishes to test a company or its staff before integrating them or buying the company. In practice, although the extended, outsourced organisation has become a dominant trend, other organisations are moving in the opposite direction and are seeking to strengthen their classical "hierarchical and pyramidal centralisation" through internalisation policies (Veltz, 2000).

This raises the question of the acquisition of certain subcontractors. The motivations for the use of subcontracting are not always rational and are likely to be the result of poor strategic choices. Subcontracting is by nature ambivalent. While it offers various benefits to the organisations and can form part of an extension strategy, this extension can sometimes be a disadvantage and pose a risk to production.

Based on the review of literature, this study identifies some contextual factors which influence subcontracting practices. These contextual factors are cost consciousness, quality risk and strategic and opportunistic motivation.

2.4 Theoretical Review

Transaction cost theory

Transaction cost theory has been the most utilised theory of subcontracting (Perunović& Pedersen, 2021). Transaction cost theory is perceived to provide the best decision-making tools to help organisations to decide to subcontract and to prepare themselves for forthcoming subcontracting arrangements. The governance features of the theory influenced that it has been applied in studying the managing relationship phase, while the concept of switching costs made the theory applicable in the reconsideration phase.

Another useful issue for subcontracting provided by transaction cost theory is an explanation of contractual complexity (Perunović& Pedersen, 2021). Though transaction cost theory has not been utilised explicitly for studying the Vendor selection phase, its sub-theory (if we may say so), the theory of incomplete contracting, has been applied in studying the structure and contents of subcontracting contracts, and related preparation and contract management activities (Perunović& Pedersen, 2021).

Even though it has been exercised extensively in subcontracting applications, the transaction cost theory has several indulgences. Lacity and Willcocks (1995) found that the original mapping to the transaction cost theory framework only explained a few IT sourcing decisions and generated much more anomalies in their sample. Another critique could be that transaction cost theory relies on a single transaction as a unit of analysis, neglecting the contemporary industrial collaborative arrangements.

Finally, transaction cost theory is static, which doesn't correspond to the dynamism of the current business environment. However, in spite of the criticism of this theory, this study relies greatly, particularly on (cost minimization and optimum service delivery), because it seems to be the driving force of competition and customer retention.

Resource-based View

The core premise of the resource-based view is that resources and capabilities can vary significantly across firms and that these differences can be stable (Barney &Hesterly, 1996), if the resources and capabilities of a firm are mixed and appropriately deployed, they can create a competitive advantage for the firm.

The resource-based view in subcontracting builds from a proposition that an organisation that lacks valuable, rare, inimitable and organised resources and capabilities, shall seek for an external provider to overcome that weakness.

Therefore the most prominent use of the theory is in the Preparation phase of the subcontracting process for defining the decision making framework and in the vendor selection phase for selecting an appropriate vendor. The approach has also been used to explain some of the critical issues of the Managing relationship and Reconsideration phases.

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Concept of Core Competence

The idea of core competencies has been developed based on the resource-based theory. Prahalad and Hamel (1990) defined core competence as the collective learning in the organisation, especially how to coordinate diverse production skills and integrate multiple streams technologies. The application of the concept of core competence in subcontracting became very popular among researchers.

The idea has been predominantly used to develop and test various subcontracting decision frameworks arguing that the core activities shall remain in the house. Learning and communication premises of the concept made it also applicable in the Managing relationship and Reconsideration phases. Vendor's competence is assumed to be one of the most important factors that influence the success of a subcontracting arrangement (Feeney et al., 2019).

Agency Theory

The focus of the agency theory originally was on the relationship between managers and stakeholders (Perunović& Pedersen, 2021), but had spread over time on explaining the relationship between two inter-firm subjects. In that context, this study associates the agency theory to understanding the relationship between firm and vendor. Sources of the agency problem, moral hazards and adverse selections (Perunović& Pedersen, 2021) should be resolved by monitoring and bonding (Barney &Hesterly, 1996).

Consequently, the application of the theory in the subcontracting process research was in the preparation phase (when screening for vendors and defining its attitude towards the type of the relationship). Naturally, the Managing relationship phase has also been explored, and to a minimal extent, the reconsideration phase.

2.5 Emperical Review

Performance Effect of Subcontracting

The interaction between the head contractor and subcontractor on the supply chain often contributes to the degree of success or failure of any large-scale projects (Jin et al., 2020). Meng (2019) revealed project poor performance could be effectively reduced by improving some aspects of this relationship. On the other hand, when the interface is not adequately managed, the likelihood of project poorly performing is increased (Meng, 2019).

If the contractual and personal features of the relationship between the main contractor and their subcontractors are uncertain, the likelihood of disputes arising is significantly increased. Disputes and conflicts between main contractors, subcontractors and other project participants often result in costly litigation and dissatisfaction of customers (Dossick and Schunk, 2021). It is, therefore, inarguable that the effective management of the interface between the main contractor and subcontractor can significantly increase the chances of project performance.

In spite of its importance and its effect on projects, the oil and gas industry places minimal emphasis on the primary contractor-subcontractor relationship. The relationship between main contractors and subcontractors are often characterised as being strained by conflict and mistrust. The bonds are mostly transactional, and this enables the main contractor to effectively allocate excessive risk to the subcontractor (Miller et al. 2002). Miller et al. (2002) reiterated that the poor relationships between main contractors and subcontractors are contributed by the traditional procurement procedures based on price.

The relationship between the general contractor and the subcontractors can mostly be characterised as pure competitive market relationships. As a result, the heavy reliance on competitive tendering for acquiring subcontracted works result in adversarial attitudes between the two parties. The main contractors mostly seek cost reductions rather than expertise and cooperation from subcontractors. The relationship also involves a significant amount of uncertainty (Jin et al., 2020). O'Brien (1998) stated that subcontractor and supplier production comprises the most massive value of project cost, so the weak management system of them can increase the total project cost.

Tam et al. (2019) indicated that the improper using of the subcontracting system in projects could increase the production cost because of on organizational such as more overheads for managerial staff, rising production costs due to more abortive and remedial work, extra cost as intermediate subcontractors charging fees without adding value and increasing cost of production due to more claims and disputes.

Also, Tam et al. (2019) also identified five key factors which cause ineffectiveness of the use of sub-contractor in the control of the project time creating unrealistic contract time for the subcontracting work. These factors are subcontractors' low efficiency, subcontractors' late response to instruction because of the long chain of communication, time-consuming on remedial task and time consuming on solving disputes among various layers of subcontractors.

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Morris et al. (2019) explained that because the costs of the subcontractor are high, contractor will often go to great lengths to avoid terminating a subcontractor and try to minimise cost. This can include renegotiating the contract, reducing the scope of the subcontractor's work, providing supplemental staffing, assisting with payroll and directly procuring equipment or materials. "Collaboration with subcontractor across the finish line" reflects the reality that a terminated subcontractor ends up costing all parties involved significant sums of money and significant additional times.

Arditi and Chotibhongs (2019) previously mentioned that the use of qualified subcontractors in the available resources or in general the subcontracting system application has proved to be efficient and economical in addition to performing the works more quickly and at a lesser cost.

III. Methodology

The study adopted a survey research design. The population of the study comprises of one hundred and seven (107) (Addax Oil Company, 2020) professionals of oil and gas that included; subcontractors, contractors, consultants' representatives, quantity surveyors, civil/structural engineers, architects, mechanical and electrical engineers, a site engineers, project managers, who are currently involved in various oil and gas projects embarked on by Addax Petroleum Development Nigeria Ltd. in Lagos State, Nigeria.

Because of the size of the population, the study considered and enumerated the total population as the sample for the study. The sample size is 107. The data used in this study were derived from a primary source. The primary data was obtained through the use of a structured questionnaire survey. A five-point Likert scale was used because it allows a range of responses to be generated, including neutral answers and does not force a decision as in the case of yes or no type of questions.

The adopted scale allowed individuals to express their opinion on how much they strongly agreed or strongly disagreed with a particular statement (1 = Strongly disagree to 5 = Strongly agree). The research instrument was subjected to both validity and reliability tests. The validity test was carried out using content and construct validity; this was done by giving the instrument to experts in the academic and the industry. The reliability of the research instrument was assessed using Cronbach's alpha with a value of 0.717, which is considered reliable based on the affirmation of Mcneill and Chapman (2019).

Out of the 107 questionnaires sent out, 80 were received back representing 75% response rate. This response rate was deemed to be adequate for the analysis based on the affirmation of Mcneill and Chapman (2019) since the result of a survey could be considered as biased and of little value if the return rate was lower than 30% to 40%. The data presentation and analysis made use of frequency distributions and percentages of all the respondents.

In this study, the analysis employed both descriptive statistics (mean, mode, median, percentage, range, standard deviations) and inferential statistics (correlation and regression analyses).

Looking at the 80 respondent, it revealed that 84% were males, and 16% were female. Further results showed that 26% of the respondents were architects, 24% were quantity surveyors, 19% were civil/structural engineers, 14% were construction managers, 9% were project managers, 8% were Mechanical Engineering, and 1% was a site engineer. Most of the respondent had a working experience of more than ten years. The statistical model for the value of projects undertaken in the past five years, the majority of the respondents have executed more than five million at an average of 68%.

Table 1: Respondents' responses on subcontracting

SUBCONTRACTING		SA	A	UN	D	SD
Effective subcontracting contributes towards adequate material supply and services in the well sites	Frequency	32	28	1	8	11
	Percentage	40%	35%	1%	10%	14%
There has been significant on product quality improvements through the practice of subcontracting	Frequency	35	25	2	12	6
	Percentage	44%	31%	2.5%	15%	7.5%
Subcontracting induces sustainable progress through continuous change and development processes.	Frequency	36	35	2	3	4
	Percentage	45%	44%	2%	4%	5%
Subcontracting creates added value in building successful stakeholders' relationships	Frequency	28	21	4	8	19
	Percentage	35%	26%	5%	10%	24%

Source: Field Survey, 2022

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With regards to the financial growth of the firm, 76% of the respondents agreed that effective subcontracting contributes towards adequate material supply and services in the well sites; 76% agreed that there had been significant improvements in product quality in the industry through the practice of subcontracting; 89% of the respondents agreed that Subcontracting induces sustainable progress through continuous change and development processes; and 61% of the respondents agreed that Subcontracting creates added value in building successful stakeholders' relationships.

The performance effect of subcontracting was examined from four different perspectives, namely customer value, financial outlook, process perspective and learning and growth perspective.

Table 2: Respondents' responses on Customer Value

CUSTOMER VALUE		SA	A	UN	D	SD
Customer value is enhanced	Frequency	38	32	2	4	4
	Percentage	47.5%	40%	2.5%	5%	5%
Brand image and reputation has improved	Frequency	32	28	4	8	8
	Percentage	40%	35%	5%	10%	10%
Partnership relationship and collaboration has improved	Frequency	37	29	2	8	4
	Percentage	47%	36%	2%	10%	5%

Source: Field Survey, 2022

With regards to customer value, 88% of the respondents agreed that Customer value is enhanced; 75% agreed that Brand image and reputation has improved, and 83% agreed that Partnership relationship and collaboration has improved.

Table 3: Respondents' responses on Financial Performance

FINANCIAL PERSPECTIVE		SA	A	UN	D	SD
Cost structure has improved over the past five years.	Frequency	29	19	4	12	16
	Percentage	36%	24%	5%	15%	20%
Subcontracting has helped in cutting cost during downturns	Frequency	36	21	4	8	11
	Percentage	45%	26%	5%	10%	14%
Subcontracting has helped in optimal utilization of scarce resources	Frequency	40	20	8	4	8
	Percentage	50%	25%	10%	5%	10%

Source: Field Survey, 2022

With regards to financial perspective, 61% of the respondents agreed that cost structure has improved over the past five years; 71% agreed that subcontracting has helped in cutting cost during downturns, and 76% agreed that subcontracting has helped in optimal utilisation of scarce resources.

Table 4: Respondents' responses on Process Performance

PROCESS PERSPECTIVE		SA	A	UN	D	SD
Suppliers, Operation, distribution and risk management have improved over the past five years (Operations Management Processes)	Frequency	33	28	1	10	8
	Percentage	41%	35%	1%	13%	10%
Customers, Acquisition, Retention and satisfaction, have improved over the past five years (Customer Management Processes)	Frequency	30	24	2	18	6
	Percentage	37.5%	30%	2.5%	22.5%	7.5%
Environment, Safety & Health, Employment, Community have improved over the past five years (Regulatory & Social Processes).	Frequency	36	24	4	4	12
	Percentage	45%	30%	5%	5%	15%

Source: Field Survey, 2022

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With regards to process perspective, 76% of the respondents agreed that suppliers, operation, distribution and risk management have improved over the past five years; 67% agreed that customers, acquisition, retention and satisfaction have developed over the past five years; and 76% agreed that environment, safety & health, employment, community have evolved over the past five years.

Table 5: Respondents' responses on Learning & Growth Perspective

LEARNING AND GROWTH PERSPECTIVE		SA	A	UN	D	SD
Contract staffs' satisfaction and development have improved over time (Human Capital)	Frequency	29	19	4	12	16
	Percentage	36%	24%	5%	15%	20%
Work culture, alignment and teamwork have improved (Organizational Capital)	Frequency	28	21	4	8	19
	Percentage	35%	26%	5%	10%	24%
Duties and tasks are performed professionally	Frequency	28	21	8	16	7
	Percentage	35%	26%	10%	20%	9%

Source: Field Survey, 2022

With regards to learning and growth perspective, 61% of the respondents agreed that Contract staffs' satisfaction and development have improved over the time; 61% agreed that strategic alliances and, alignment and teamwork have improved; and another 61% agreed that duties and tasks are performed professionally.

Hypotheses Testing

Hypothesis One

Subcontracting practices does not have significant effect on organisational contextual factor.

To establish the performance effects of subcontracting on the Nigerian Oil and Gas Industry, regression analysis was used;

Independent Variables (X1-X4) = Organisational Contextual Factors

Sub-Dependent Variable (X1) = Cost consciousness

Sub-Dependent Variable (X2) = Quality consciousness

Sub-Dependent Variable (X3) = Risk consciousness

Sub-Dependent Variable (X4) = In-house Expertise

Dependent variable (Y) = Subcontracting Practices

Model 1 for (H01) is stated as $Y = \alpha 0 + \beta 1X1 + \beta 2X2 + \beta 3X3 + \beta 4X4 + e$

Table 6: Multiple Regression Results of the relationship between Organisational Contextual Factors and Subcontracting Practices

Model One $Y = \alpha 0 + \beta 1X1 + \beta 2X2 + \beta 3X3 + \beta 4X4 + e$		**Unstandardized Coefficients**		**Standardized Coefficients**	**T**	**Sig.**
		B	**Std. Error**	**Beta**		
1	(Constant)	2.953	0.456		6.786	0.018
	Cost consciousness	0.707	0.165	0.342	2.732	0.049
	Quality consciousness	0.559	0.177	0.399	5.410	0.021
	Risk consciousness	0.493	0.184	0.283	1.442	0.031
	In-House Expertise	0.663	0.173	0.319	2.720	0.041
a.**Dependent Variable: Subcontracting Practices**						
b. **R= 0.943**		**R^2 = 0.887**		**F = 3.256**		

Source: Research Study, 2022

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Table 6 shows that there is a significant relationship between organisational contextual factors and subcontracting practices in the Nigeria oil and gas industry (F = 3.256, R2 = 0.887 *P < 0.05*). The finding implies that organisational contextual factors account for 88.7% of changes in subcontracting practices in the Nigeria oil and gas industry.

This finding is suggesting that organisational contextual factors are responsible for 88.7% of the time subcontracting is being practised in the Nigeria oil and gas industry. In light of this, the null hypothesis is, therefore, rejected. The result in Table 6 further shows that there is a significant relationship between industry regulations compliance and industry performance as it is associated with sig-values are less than 0.05.

Hence, it is suggesting that the independent variables (organisational contextual factors) are significant enough to predict the dependent variable (subcontracting practices). It was found that cost consciousness (β = 0.707) had the most influential predictive contribution to subcontracting practices, indicating that cost consciousness is the primary reason for subcontracting practices in the Nigeria oil and gas industry.

Hypothesis Two

Subcontracting does not have significant effects on the performance (customer value, financial, process and learning and growth) of the Nigerian Oil and Gas Industry.

To establish the performance effects of subcontracting on the Nigerian Oil and Gas Industry, regression analysis was used;

Independent variable (X) = subcontracting

Dependent Variables (Y1-Y4) = Performance

Sub-Dependent Variable (Y1) = Customer Value

Sub-Dependent Variable (Y2) = Financial Perspective

Sub-Dependent Variable (Y3) = Process Perspective

Sub-Dependent Variable (Y4) = Learning & Growth Perspective

Table 7: Regression analysis table on the effects on subcontracting on the four performance perspectives of the Nigerian Oil and Gas Industry

Performance Dimensions	R^2	F-Cal	p-value	A	β	Decision
Customer Value	0.551	1025.713	0.002	0.382	0.89	Subcontracting is significant
Financial Perspective	0.497	590.438	0.001	0.629	0.778	Subcontracting is significant
Process Perspective	0.665	684.291	0.000	0.532	0.849	Subcontracting is significant
Learning & Growth Perspective	0.815	559.286	0.000	0.402	0.908	Subcontracting is significant

Source: Research Study, 2022

Customer Value

The coefficient of determination (R2) of 0.55 1 signifies that 55.1% of the variance observed in customer value is accounted for by subcontracting; this value is statistically significant because the generated p-value of 0.002 is less than 0.05 level of significance used for the study. The F1,78 calculated value of 1025.71, which is higher than the tabulated result of 3.89 further shows that the regression model for customer Value has a good fit.

Regression model: **Customer Value** = 0.382 + 0.89 Subcontracting

Financial Performance

The coefficient of determination (R2) of 0.497 signifies that 49.7% of the variance observed in the financial performance of the Oil and Gas industry is accounted for by subcontracting; this value is statistically significant because the generated p-value of 0.000 is

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less than 0.05 level of significance used for the study. The F1,78 calculated value of 590.44, which is higher than the tabulated result of 3.89 further shows that the regression model for financial performance has a good fit.

Regression model: **Financial performance** = 0.629 + 0.778 Subcontracting

Process Performance

The coefficient of determination (R2) of 0.665 signifies that 66.5% of the variance observed in process performance is accounted for by subcontracting; this value is statistically significant because the generated p-value of 0.000 is less than 0.05 level of significance used for the study. The F1,78 calculated value of 684.30, which is greater than the tabulated result of 3.89 further shows that the regression model for process performance has a good fit.

Regression model: **Process Performance** = 0.532 + 0.849 Subcontracting

Learning & Growth Perspective

The coefficient of determination (R2) of 0.815 signifies that 81.5% of the variance observed in learning and growth perspective is accounted for by subcontracting; this value is statistically significant because the generated p-value of 0.000 is less than 0.05 level of significance used for the study. The F1,149 calculated value of 559.286, which is higher than the tabulated result of 3.89 further shows that the regression model for the responsiveness of service has a good fit.

Regression model: **Learning & Growth Perspective** = 0.402 + 0.908 Subcontracting

Decision

The null hypothesis is rejected, while the alternative hypothesis was accepted; thus, it is concluded that subcontracting has significant effects on the performance of the oil and firm industry.

IV. Discussion of Findings

The result in Table 6 shows that there is a significant effect between organisational contextual factors and subcontracting practices as it is associated with sig-value is less than 0.05. The coefficient of determination (R2=0.887) also indicated that organisational contextual factors measures (cost consciousness, risk consciousness, quality consciousness and in-house expertise) are accountable for every 88.7% change in subcontracting practices.

The findings are, however, suggesting that organisational contextual factors contribute to subcontracting practices. This view supports the view of the transaction cost theory which posits that firms choose between doing things themselves or having them done (make-or-buy decision), depending on the cost of acquiring a product or service on the market compared to the cost of internal production.

Also, the findings are supported by the position of the resource-based view theory which asserts subcontracting builds from a proposition that an organisation that lacks valuable, rare, inimitable and organised resources and capabilities, shall seek for an external provider to overcome that weakness.

Finally, these findings have an empirical link with the study of Barthélemy and Donada (2022), which concluded that companies are propelled to engage in subcontracting practices due to rapid access to resources and skills that are not available internally and to Quélin and Duhamel (2020), a company employs subcontracting for several reasons such as quality, efficiency and cost.

The findings from Table 7 above are suggesting that if the subcontracting practices in the oil and gas industry have a significant effect on the different dimensions (such as customers' value, finance, process improvement and learning and growth) of the industry's performance. This view supports the view of the transitional theory positing that the cost-benefit analysis (such as improved customers' value, financial and process performance) is a primary reason why firms are involved in social subcontracting relations.

The findings of the study are also supported by the study of Guers (2022), which established that the use of subcontractors leads to both restructuring and process improvement within the firm, and it becomes possible to anticipate events and shield productive organisations from certain risks. Also, Ohnuma (2020) asserted that the strategy of subcontracting stands out as an excellent alternative to provide flexibility, a "dry framework", productivity and reduction of transaction costs.

V. Conclusion

The subcontracting has become a vast subject among practitioners in the oil and gas industry, as there is a significant effect between organisational contextual factors and the finding is in tandem with this fact. Also, effective subcontracting was noted to determine

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the success of oil and gas companies. Problems of subcontracting, otherwise if ignored, can cause an immense impact on oil and gas projects.

Recommendations

The study recommends that special attention should be given to the following points:

1. For product quality assurance, every subcontracting firms have to give a high consideration to the organisational contextual factors of the location of were the oil industry contracted resides. This is because environment plays a vital role to influence performance either positively or negatively
2. Secondly, the effect of subcontracting can be felt better if the contractor should select project managers who have a strong personality and tremendous experience in the oil and gas industry to be able to manage the subcontracting effectively in the project

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