

COMPARATIVE STUDY OF THE SUITABILITY OF INDIGENOUS AND
EXPATRIATE SUBCONTRACTORS IN THE CONSTRUCTION INDUSTRY IN
ABUJA.

BY

MOMODU, Dauda David
MTech/SET/2019/9682

DEPARTMENT OF BUILDING
FEDERAL UNIVERSITY OF TECHNOLOGY MINNA

OCTOBER, 2023

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**A THESIS SUBMITTED TO THE POSTGRADUATE SCHOOL FEDERAL
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FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE
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MANAGEMENT**

OCTOBER, 2023

DECLARATION

I hereby declare that this thesis titled “**Comparative Study of the Suitability of Indigenous and Expatriate Subcontractors in the Construction Industry in Abuja**” is a collection of my original research work and it has not been presented for any other qualification anywhere. Information from other sources (published or unpublished) has been duly acknowledged.

MOMODU, DAUDA DAVID
SIGNATURE/DATE
MTechSET/2019/9682
FEDERAL UNIVERSITY OF TECHNOLOGY
MINNA, NIGERIA

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CERTIFICATION

This thesis titled “**Comparative Study of the suitability of Indigenous and Expatriate Subcontractors in the Construction Industry in Abuja**” by: MOMODU Dauda Dauda (MTech/SET/2019/9682) meets the regulations governing the award of degree of MTech of the Federal University of Technology, Minna and it is approved for its contribution to scientific knowledge and literary presentation.

Dr. C.U. Ayegba
SUPERVISOR

.....
Signature & Date

Dr. J. A. Apeh
HEAD OF DEPARTMENT

.....
Signature & Date

Prof. O. A. Kemiki
DEAN OF SCHOOL OF ENVIRONMENTAL
TECHNOLOGY

.....
Signature & Date

Engr. Prof. O. K. Abubakre
DEAN OF POSTGRADUATE SCHOOL

.....
Signature & Date

DEDICATION

This thesis is dedicated to almighty God and my beloved wife for her support in the course of this work.

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I am grateful to God Almighty for his wisdom and sustenance throughout this programme.

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ABSTRACT

The choice and preference for engaging expatriate or indigenous subcontractors should be based on the suitability of these subcontractors in relation to their performance in the various subcontracting elements of a project. This study aimed to compare the suitability of indigenous and expatriate subcontractors in the construction industry for the various subcontracting elements of building projects and propose strategies to improve their suitability. A quantitative research methodology was employed for the study in which questionnaires were administered to selected professionals in the construction industry. A total of 320 respondents took part in the study employing random sampling technique. The collected data were analysed using statistical packages for social sciences (SPSS) version 20. From the findings the following building elements are mostly subcontracted to expatriate subcontractors: sanitary appliances, external works, swimming pool, disposal installations, services equipment, and frames and upper floor. while roofs, substructure, electrical installation, mechanical installation, stairs, finishes, curtain wall are the building elements mostly subcontracted to indigenous subcontractors. The findings also reveal that the expatriate subcontractors are more suitable for executing sanitary appliances (4.92), services equipment (4.89), disposal installations (4.83) external works (4.73), windows and doors (4.20) and swimming pool subcontracts while the indigenous subcontractors were indicated to be more suitable in substructure, electrical installation, roofs, mechanical installation, stairs, finishes, frames and upper floors. The findings revealed that key factors influencing subcontractor performance, ranges from time factor-change/variation and plant and equipment to external factors and financial management. The results demonstrated that all identified factors were statistically significant in affecting subcontractor performance ($p < 0.05$). Additionally, no significant differences in opinion were observed based on the subcontracting and profession measuring scale. The following recommendations were made, clearly defining the scope of work and expected outcomes in subcontractor agreements, conducting regular progress meetings, providing training and support to subcontractors as needed, and establishing systems for tracking subcontractor performance. Furthermore, the study emphasizes the need to improve subcontractor's performance and providing incentives for good performance. The study provides valuable insights into the factors influencing subcontractor performance in the construction industry. This can guide construction professionals, project managers, and policymakers in improving subcontracting practices and overall project outcomes.

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CHAPTER ONE

INTRODUCTION

1.0

1.1 Background to the Study

Construction is labor-intensive (Hossein *et al.*, 2018), and construction projects involve various trades. It is prevalent for the main contractors to engage subcontractors for most, if not all the trades, especially for those requiring skills that are specialized in nature (Fagbenle and Makinde, 2010). It is almost impossible for an organization to develop expertise in all areas thereby necessitating the need for subcontracting. (Mohd and Noor, 2020) defines subcontracting as assigning or outsourcing part of the obligations and tasks under a contract to another party, known as a subcontractor.

The use of subcontracting is a necessity for the attainment of successful projects (Mohd and Noor, 2020). The subcontracting System has gathered momentum in different parts of the world since the 19th century (Biswas and Charya, 2017). About 35 million people are directly involved in subcontracting systems worldwide, growing faster in the cities (Biswas, and Charya, 2017). Thus, the subcontracting system and subcontractors have an important place in the construction industry (Hassim and Teik-Hua, 2012). Moreover, the highly segmented subcontracting structure in the construction industry serves as a buffer against risk, helps to reduce operating costs, secure competitive advantage and positions for maximum profit.

Performance in any industry is essential in achieving measures to ensure healthy sustainability and competitiveness (Muthuveloo *et al.*, 2017). Performance is one of the key indicators of all activities in any industry as it ascertains the industry's survival (Wang *et al.*, 2015). The success of a project's performance is determined by some constraints (time, cost, quality, health and safety) (Cserhati and Szabo, 2014). The debate on project performance

in the Nigeria construction industry (NCI) centers mainly on the performance of Expatriate and Indigenous contractors (Idoro and Akande, 2008; Chukwudi and Tochukwu , 2014). Indigenous contractors are contracting firms that are fully-owned and managed by Nigerians According to Ibrahim *et al.*, (2014), some of the projects managed by indigenous contractors are replete with project abandonment, cost and time overrun, poor artistry, poor management capacity, financial difficulties, poor planning, poor mechanization and high frequency of litigation, these are ascertained as the results of inexperience incompetence, adoption of traditional management method; and poor innovation and dynamism. Indigenous contractors focus very much on making profit due to the absence of a distinct policy to ameliorate their sustenance and development in construction firms in Nigeria (Ogbu, 2017), because they have to compete for 5% share of the construction project (Ogbu, 2017). Indigenous contractors are stiffened to formulate and implement practices ensuring their survival. One of these practices involves the indigenous contractors often succumbing to the pressure of bidding to win the contract at any cost to get a return on capital/assets employed (Oladimeji and Aina, 2018). Several of these practices aim to win the contract rather than the success of the project (Olatunji *et al.*, (2018). This accounts for the reasons indigenous contractors fail to prepare adequate project plans, which is crucial for good cost and time performance (Inuwa *et al.*, 2015).

Unlike indigenous contractors, foreign construction firms have a huge capital base and human resources well managed to handle their various activities (Tsado *et al.*, 2019). According to Olatunji *et al.*, (2018) many foreign contractors are now becoming indigenized. Nigeria has gained between 40% and 60% capital ownership from government indigenization initiatives. The choice and preference for engaging expatriate subcontractors

as compared to indigenous firms is majorly lack of technical competence, deficiency in managerial skills and planning (Odediran *et al.*, 2012). This study therefore seeks to investigate the suitability of indigenous and expatriate subcontractors for selected building element works in the construction industry.

1.2 Statement of the Research Problem

Subcontracting in the construction industry has greatly increased in recent years (Polat, 2016). As a result of modern technology, size and complexities of construction projects, main contractor prefers to subcontract work, because of insufficient resources of expertise in specific areas. The debate on the choice between indigenous and expatriate subcontractors in the Nigeria construction industry centers mainly on the performance of expatriate and indigenous subcontractors. Though significant literatures have reported in favour of expatriate subcontractors against the indigenous, the call for more engagement of indigenous subcontractors is being promoted in recent years. In a study which analyses the strength, weakness, opportunity and threats of indigenous and expatriates in a developing economy, Oke *et al.* (2016) reported that the indigenous subcontractors exhibits some strengths over the expatriates as well. However, indigenous subcontractors have not been given favorable considerations as most contracts are awarded to expatriate's sub-contractor in developing countries, including Nigeria. For example, the volume of completed projects under the Federal Ministry of Works, Housing and Urban Development at the first quarter of 2009 indicated a total volume of 235.51 completed by expatriates as against 68.22 awarded to indigenous subcontractors (Tunji and Omuh, 2018). Also, Oke *et al.* (2016) show that foreign construction firms account for just 5% of the number of contractors in the formal

sector but controls 95% of the main public projects despite the strength indigenous subcontractors have shown in certain areas.

This study therefore seeks to investigate the suitability of indigenous and expatriate subcontractors for selected building element works in the construction industry.

1.3 Research Questions

In this research, the following questions are raised and considered;

1. What are the elements of construction works subcontracted to expatriate and indigenous construction companies in FCT?
2. How can the suitability of expatriate or indigenous subcontractors for selected building elements be evaluated?
3. How can the factors affecting the performance of expatriate and indigenous subcontractors be determined?
4. What are the strategies for improving the performance of subcontractors on building project?

1.4 Aim and Objectives of the study

This study aims to compare the performance of indigenous and expatriate subcontractors in a view to improve Sub-Contractors' performance in the construction industry.

Therefore, the objectives of this study are to:

1. Determine the elements of building works subcontracted to expatriate and indigenous construction companies
2. Evaluate the suitability of expatriate or indigenous subcontractors for selected building elements

3. Determine the factors affecting the performance of expatriate and indigenous subcontractors.
4. To proffer strategies for improving the performance of expatriate and indigenous subcontractors on building projects.

1.5 Justification for the Study

The research provides theoretical references for establishing effective mechanisms and methods for improving subcontractor performance. Subcontractor's performance is very critical in realizing construction products. Every construction project faces difficulty and uncertainty, when an incompetent subcontractor is chosen, the possibility of losing working time, over-budget costs, poor project quality, disputes and even bankruptcy will increase (Olateju, 2018). Key factors that influence construction subcontractor performance are also the factors which determine subcontractor project implementation abilities (Kissi, *et al*, 2019). Construction subcontractors' performance in meeting the performance evaluating factors shows their maximum possible performance in project completion (Akani *et al*, 2015). It follows that there is a broad scope of crossover between the selected indicator for evaluating subcontractor qualifications and abilities and the factors that influence subcontractors' performance. This study will focus on comparing the performance of indigenous and expatriate as this could determine the success or failure of a project and a subcontractor's ability to deliver a contract, its strength and public reputation. Analyzing key factors for subcontractors' project performance from a contractor perspective can improve the credibility of selected subcontractors (Fang and Wang, 2000). Currently, Nigerian construction industries appear to favor foreign companies as against the indigenous base in selecting suitable subcontractors for the execution of construction works due to their

poor performance (Temitope and Alonge, 2019). Therefore, Idoro, (2009), advocates the need for indigenous subcontractors to regain the confidence of clients by improving on their performance. The result of the research findings will help to know what: elements of building works mostly subcontracted to expatriate and indigenous subcontractors and their relative effects on project performance. Using the result of research on key factors influencing construction subcontractor performance will enable construction contractors to realize that their contract performance ability and the strength of their public reputations directly determine their own performance. This knowledge will enable all concerned in the building industry in Abuja to know what to look out for to enhance the subcontractor's project performance.

1.6 Scope of the Study

This research compares the performance of indigenous and expatriate subcontractors in the construction firms in Abuja. This research focused on selected building professionals in construction firms in Abuja. It will comprehensively examine the subcontractor's performance and the strategies to improve the performance

CHAPTER TWO

2.0

LITERATURE REVIEW

2.1 Nigerian Construction Industry Overview

Organized construction contracting in Nigeria began in the 1940s with few foreign companies coming into operation (Olowo, 1985). Nigeria's Independence in 1960, bolstered by the "oil boom" of the 1970s, brought an upward trend in construction activities and up to the end of the second Republic in 1983, the construction industry in Nigeria has witnessed an overwhelming upsurge in construction contracting dominated by expatriate companies with few indigenous companies (Idoro, 2009). Unfortunately, the period also exposed the country's indigenous Companies' low level of human resources development required for; planning, designing, constructing and maintaining the magnitude (in size and number) of projects conceived by the government. However, with improved training institutions, engagement of expatriates, collaborations between indigenous and foreign entrepreneurs, political stability and improved government policies, the apparent resources gap needed for the successful completion of complex projects between indigenous companies and their foreign counterparts is now closer compared to the pre-independence era (Mbamali and Okotie, 2012).

The primary source of capital formation in the construction sector that can spur growth and development in Nigeria is the public sector, with the traditional approach in the significant infrastructure procurement process of funding through annual capital budgetary provision. This significant correlation of government participation with the level of the construction industry was due to minimal private involvement in capital formation and formal infrastructure procurement, limiting the sector's potential. However, with stakeholders'

rising emphasis and growing interest in bridging Nigeria's infrastructure gap, the future growth of construction as a tool for sustainable economic development is somewhat optimistic. Major milestone over the last decade, which includes self-sufficiency in cement production that guarantees materials price stability and the growing emphasis on PPPs to supplement the construction industry's capital expenditure, is project financing, dearth of technical expertise, corrupt government and poor cases for optimism. However, peculiar problems common to sub-Saharan Africa (SSA) countries, implementation of policies and programmes are challenges mitigating the development and growth of the sector and hence the contribution to sustainable development. In a related development, Nigeria as a developing country and her construction industry still struggles with many intrinsic challenges, ranging from inadequate technical and managerial know-how to insufficient financial, material and equipment capital base (Ofori, 2001). However, the industry is also full of inherent potentials, such as self-sufficiency in cement production that will stabilize the materials sector and the massive deficit in physical infrastructure (road, rail, airport and sea port) that will be key to creating opportunities for sustainable development (Research and Innovation in Building and Construction), 2004; Oluwakiyesi, 2011).

2.2 The Role of the Construction Sector in Economic Development

The building construction industry is known to be a hub of traders from different specializations. Lew *et al.* (2018) indicated that the construction industry is unique because of the size and complexity of the projects undertaken and the nature of the "one-time off project" working environment. The construction industry is strategically important to all nations due to its economic role (Ogunsemi, 2015). Nigeria's construction industry contributed approximately 3.01% to the economy's GDP as of the third quarter of 2019

(National Bureau of Statistics, NBS, 2019). The industry is still a source of employment for the country's teeming, workable population. Improving the organizational construction industry will improve economic performance (Oke and Ogunsanwo, 2018). The construction industry in developed and developing countries may be viewed as a sector of the economy that transforms various resources into constructed facilities through planning, design, construction, maintenance and repair, and operation. The types of public and private facilities produced range from residential and non-residential buildings to heavy construction. These physical facilities play a critical and evident role in development (Kheni *et al.*, 2008). The major participants from the construction industry include the architects, engineers, management consultants, general contractors, heavy construction contractors, special trade contractors or subcontractors, and construction workers, along with the owners, operators, and users of the constructed facility. Building finance and insurance agencies, land developers, real estate brokers, and material and equipment suppliers and manufacturers, among others, are also involved in construction but are generally considered distinct from but ancillary to the construction industry. The government interacts with the industry as a purchaser, financier, regulator, and adjudicator. The regulatory environment within which the construction industry operates is also essential and includes, for example, building and related codes, licensing requirements, safety legislation, and financial institution operating rules asserted that most countries put over 55% of their gross domestic investment into the creation of physical facilities, including infrastructure that is necessary for development. The construction sector's workforce ranges from highly skilled professionals to completely unskilled labourers. In developing countries, physical

construction activities alone provide between 2 and 6% of the employment demands of the nation, and the subsidiary activities provide an additional 2 to 4%.

In comparison, in the developed countries, the figure rises to between 6 to 10% and 4 to 6%. (Cockburn and Charles, (1970); Okeola (2009), Shittu and Shehu (2010) stated that the construction industry plays a crucial role in satisfying a wide range of physical, economic and social needs and contributes significantly to fulfilling various primary national goals.

2.3 Subcontracting in Building Construction

A sub-contractor is a construction company or an individual that contracts with the main contractor to undertake specific tasks on a project as part of the overall contract and may supply labourers, materials, equipment, tools and designs" (El-Kholy, 2019). Samuel (2019) indicated that sub-contractors enter contracts to execute portions or parts of contracts. According to Mbachu (2008), subcontractors are specialist agents in the execution of specific jobs, supplying workforce besides materials, equipment, tools or designs. Subcontractors are agents of the production system; they are responsible for the execution of specific parts of the work. The classification of subcontractors focuses on the type of activities they perform. Subcontractors are construction 'job shops'. They perform construction work that requires skilled labour from one or, at most, a few specific trades (Abbasianjahromi *et al.*, 2013). stated that it is common for 80-90% of building project work to be performed by subcontractors in the United States of America.

The main contractor – the unit responsible for project management – implements their project by breaking down huge workloads into smaller work packages to manage their schedule, quality, and budget to minimize risks. A subcontractor is a construction company that contracts with the main contractor with the responsibility of implementing and

completing the project's work packages, including supplying the workforce (workers), equipment, tools, designs, and other supplies (Abbasianjahromi *et al*, 2013; Arditi and Chotibhongs, 2015). A subcontractor shares the construction services' benefits and risks. Subcontracting firms are increasingly specialized and outstanding in their fields and work to meet the rigorous needs of the leading contractors. Subcontractors can be divided into three main groups: (i) subcontracting related to trade and material provider for the project; (ii) special services subcontracting that provides individual services such as mechanical and electrical construction, tank systems, lighting, sound; and (iii) workforce contractor, supplying skilled workers to perform parts of the construction works (Mbachu, 2008). Specialization is the construction industry trend, with subcontractors perfecting their services through projects with similar workloads. Thus, they can perform work packages on a single project faster and at less cost than the main contractor (Yoke *et al.*, 2012). Subcontractors, thus, have an advantage in using the equipment and training more specialized workers. Therefore, the contractual relationship between the main contractor and the subcontractors has become closer (El-Mashaleh, 2009; Hinze and Tracey, 1994). The cooperative relationship's success and effectiveness can influence a project's overall success. As a result, selecting the subcontractors and their selection criteria have become topics of interest to many researchers (Kashiyani, 2018).

The characteristics of specific construction projects create difficulties for the main contractors, primarily financial or cost risk (Atune and Gonzalez, (2015). Using subcontractors is a means of minimizing risks and, thus, sharing benefits. The main contractor undergoes a selection process that includes evaluating the criteria for the subcontractor's selection (Turskis, 2008). Further, the tendering price of the subcontractors,

as well as other measures, need to be considered in the selection process for the main contractor. The construction process can be affected because the tendering price is not an evaluation of all the subcontractors' characteristics and capabilities (Julion, and Francisco 2002). Delays, cost overruns, and low quality are high risks for the main contractor if their subcontractor does not comply with the contractual requirements (Nguyen, 2020; Pham *et al.*, 2020).

2.4 Types of Construction Subcontractors

Subcontractors take various forms but may be conveniently divided into two categories. The first is commonly termed "trade subcontractor". They are, in fact, groups of tradesmen and work hands and are usually employed by the main contractor to undertake labour-intensive work such as formwork construction and finishing work. The second category of subcontractors performs specialist work on site, such as constructing sheet piles and installing the air-conditioning or lift systems. The contracting system can be divided into direct labour and subcontracting systems. Under the subcontracting system, the subcontractor may supply materials only, labour or both.

Domestic subcontractors are those to whom the main contractor sublets part of the work entirely at his discretion. In Singapore, domestic subcontractors are commonly engaged in labour-intensive trades such as formwork, roofing, tiling, and painting. They are also employed in trades where a large portion of their work requires special machinery and plant for a short duration, for example, excavation and piling El-Mashaleh, (2009) However, the contractor shall not engage any subcontractor without the prior written consent of the architect In practice, architects do not usually withhold their consent and the main contractors seldom seek such approval (Lee, 1996).

On the other hand, the employer may wish to take over the right of subcontractor selection and then specify to the contractor the subcontractor's identity to be used. The reasons may include the requirement for more control over critical aspects of the work performance so that the client can be assured of the cost and quality of the work. The subcontractors may be nominated or named, depending on how the employer exercises his selection rights. Nominated subcontractors are in trades such as piling, plumbing, air-conditioning, lifts, fire-fighting and prevention, and other specialized works.

2.5 Selection and Evaluation of Subcontractors

In recent literature, subcontractor selection factors have varied widely in the research. However, the most essential and characteristic factors include cost (price), quality, safety, and schedule (Bailey, 2016; Nguyen, 2020). The subcontractor selection criteria also are the expected bid, reputation (past performance), accreditation from government agencies (quality), staff qualifications (technical capacity), financial status (number of public work in the past five years), timing (estimated project duration), construction health and safety records, management (including information provided and how subcontractors respond to documents necessary), production and capacity (technology level: equipment), location, shares for subcontractors (Aje *et al.*, 2018).

The selection of subcontractors is still not given due attention in the construction industry in developing countries, which accounts for many SMEs (Abbasianjahromi *et al.*, 2013). The selection of subcontractors for specialized work in the construction process minimizes the risks for main contractors. On the other hand, negative consequences are inevitable if the subcontractor selection process does not match the construction industry at a project site (project size, market characteristics, and owner expectations).

Experience and product quality are essential for ranking sub-contractors (Hartmann *et al.*, 2009) offered a list of critical factors affecting subcontractor selection, including experience, past performance, formal relationships, financial strength, and workload. Further, project knowledge, reliability, altruism, problem-solving ability, enthusiasm for the project, price, quality of the technical staff, labour, payment plan, and the number of subcontracting units needed are also included. The subcontractor's work quality was indicated to be important in Shivam and Kashiyani (2018) study. Their factors included the quality of work, timely work completion, craft standards, the lowest bid, and flexibility and cooperation when dealing with delays. Further, the completed project's scope, financial stability, material resources, equipment, health and safety records, and reputation were all issues.

A schedule was an indispensable factor when assessing the performance of a subcontractor. In Jordan, a group of factors was used for assessment: project duration, reputation (past performance based on the number of successful projects done), expected price, employee qualifications, technology level (physical equipment), equity for subcontractors, subcontractor rating, health and safety profiles, general impressions, and subcontractors' response rates, workload (financial) over the past five years, all certified by government agencies (Abunada and Mohammed, 2018).

Contract guarantees were the main contractor's interests included (Marzouk *et al.*, 2013). Besides, other factors such as flexibility and cooperation when dealing with delays; compliance with specifications and quality; a supplier's ability to deliver raw materials on time; ability to complete the contract; a subcontractor's physical resources; bidding price; difficulty in repayment, and flexibility in critical operations. Other matters affecting the

subcontractor's performance were identified by El-khalek *et al.* (2019). For example, the critical factors identified were guaranteeing on-time delivery of materials, failure to complete a contract due to financial problems, and reimbursement issues. Furthermore, issues such as prestige, bidding, and handling essential activities in the construction and progress stage that exceeded the performance contract mattered. If the labour capacity was insufficient, the work's proportion was completed behind schedule, and the project's technical difficulties need to be incorporated into the evaluation. Other factors that establish a contractor's strength in participating in a competency competition with other contractors include construction engineering, time control, operating method, material waste, service after work completion, cooperation with other subcontractors, safety and protection practices, usage habits tools (tools borrowed from contractors), work ground clearance, manageability, the personality of subcontractors, economic conditions (Ko et al., 2007). The study was done to synthesize factors from previous research.

2.6 Improving the Relationships Between the Subcontractors and the Main Contractors

There exists a mutual relationship between the subcontractors and the main contractors. The quality of work the subcontractors deliver affects the performance of the leading contractors. Typically, the working relationship between the main contractor and the subcontractors extends beyond one project. It is due to mutual trust and past working experiences between both parties that the cooperation continues (Lim, 2003).

The plethora of evidence supporting the paybacks of a healthy relationship between main contractors and subcontractors in construction projects has instigated worldwide research on fostering a fruitful relationship between the parties (Cheng and Li, 2014). Several factors have been found to enhance the contractor- subcontractor relationship. Enshassi *et al.* (2012)

emphasized that a balanced flow of information between main contractors and subcontractors is crucial. Akintan and Morledge, (2013) encouraged a communication system that ensures prompt and sustained information sharing between the main contractor and subcontractor. Rajput and Agarwal, (2015) further advocated sharing clear and complete documentation between main contractors and subcontractors.

Similarly, early communication and when there is a deterrent to project delivery is essential (Manu *et al.*, 2013).

Rajput and Agarwal (2015) presented diverse factors that improve the primary contractor-subcontractor relationship. Factors include; project parties respecting the terms and conditions given in the contract document, conforming to required standards, and finishing work within the required time. Suppose the main contractor is not content with the performance of the subcontractor. In that case, they must issue warnings to the subcontractor before assigning part of the work to a new subcontractor. Moreover, the contractors should also consider their financial conditions and plan carefully to avoid problems or crises during a project. Building trust among project participants is associated with superior team coordination (Cheng and Li, 2014). Trust exudes from collective pull-based planning, measurement, learning, and continual financial improvement. Trust between project parties encourages transparency and commitment. Jin *et al.* (2013) advised that project participants must eradicate stereotypes and ideologies and do away with their professional delineations to trust one another. Manu *et al.*, 2013). recognized that to solve interface problems and minimize their negative effects on a project, a proper plan should be devised. Jin *et al.*, (2013) noticed that forming partnership-based relationships based on mutual objectives and fair contracts can help improve project delivery. Larson, (2016) advocated integration of

subcontractors in major project decisions. Enshassi *et al.* (2015) recommended that main contractors issue the financial payments to the subcontractor on time, enabling the subcontractor to cover expense, purchase the required materials, and pay for the labors on time. Whereas for the subcontractor. Enshassi *et al.* (2012) suggested the use of all safety measures, the utilization of modern techniques for management of labor and materials, the proposing of suitable and reasonable prices and lastly the employing of a sufficient number of qualified technical staff.

Efficient and effective site coordination requires main contractors to focus their efforts in the management systems, especially communications (McCord and Gunderson, 2014). The main contractor's success on project relies on the temporary bounded interdependent services of the subcontractor hence quality work by subcontractor is essential to the main contractor (White and Marasini, 2014). Studies have indicated that partnering has a positive impact on relationship and project performance, in context of time, cost and quality, safety and reducing lengthy litigations (White and Marasini, 2014; Gadde and Dubois, 2010). This is because partnering is a management technique designed to overcome the usual tendency of managing projects in the traditional adversarial (Larson, 2016). There is considerable variation of definition of partnering. However, there is conformity over the general concept of partnering as a co-operative relationship between business partners formed in order to improve performance in the delivery of projects (Skeggs, 2013). It is regarded as a management tool to improve quality and programs to reduce confrontations between parties, thus enabling an open and non-adversarial contracting environment (Cheung *et al.*, 2013). Nevertheless, little research outlines the mechanism behind its application (Tang *et al.*, 2012). Partnering can be categorized as non-contractual or contractual partnering this is

based on contractual status (Hong Kong Construction Industry Council, 2012). Non-contractual partnering is not legally binding, meaning it does not change the contractor's terms and the contractual relationships between the parties.

2.7 Elements of Building Work Subcontracted to Expatriate and Indigenous Subcontractors

Nigeria is a nation that is still at infancy stage of infrastructural development with lots of construction activities being carried out across the nation by federal, state and local government as the major client of construction activities in Nigeria (Oraegbune *et al.*, 2022). All the constructions activities are carried out by contracting firms which are either expatriate or indigenous whose structure at times affect the level of construction output and quality (Adebayo, 2014). However, the execution of most of the construction works are carried out by expatriate subcontracting firm, but changes in government transformation agenda and local content policies in infrastructural sector as created room for indigenous firm to grow and participate in the developmental process (Idoro, 2009).

Against this background there is need to examine the major element if building works usually subcontracted or handled by expatriate and indigenous subcontractors in construction firm In Abuja. Okunlola's study in 2019 identified 16 building elements usually executed or handled by expatriate and indigenous subcontractors as follows:

Roofs, Sanitary appliances, Stairs, Foundation, Mechanical installation, Ventilation and Heating System, Swimming Pool, Plastering and Rendering, Frames and upper floors, Electrical installation, External Works, Drainage, Windows and Doors, Lifts and conveyor installation, Screeding and Painting. The study shows that expatriate and indigenous subcontractors often execute similar elements of building works. The high frequency of

subletting of these elements is attributed to high level of mechanization required in measuring and installation in the work at the construction stage.

One of the factors that hinders indigenous subcontractors in executing larger parts of the building project is finance because they experience difficulties in obtaining money from financial institution to finance project (Stretton, 2018). Other factors which affects the indigenous subcontractors in delivering ir executing most building works are working relationship, facilities and equipment, communication, cultural impacts and financial management skill (Ofori, 2019). On the other hand, the expatriate subcontractors have huge capital base and resources that are well managed to handle various construction activities (Tsado *et al.*, 2019). Expatriate firms are considered to be technically and managerially superior. They are also viewed as more efficient in project execution than the indigenous firms (Odedirin *et al.*, 2012).

2.8 Factors Affecting Subcontractor Performance and Suitability in Project Execution

According to Hatush and Skitmore (1997) Subcontractor's performance mainly includes four aspects: project period, cost, quality and safety, also known as the success factors for construction projects. The Construction subcontractor selection indicators which contractors use, such as financial capability, qualification class, tender price and employee competency, will have varying degrees of influence on the above four performance aspects. They are usually used as evaluation factors or performance factors. Below, the major factors used to evaluate subcontractor performance will be reviewed first.

2.8.1 Subcontractor's financial capability

Before inviting construction subcontractors to bid, contractors will find it helpful if they can learn about subcontractors' financial position and project finance management practices. Due to their poor financial position, some enterprises may well use advance payments and project payments from contractors for other purposes, bringing their subcontracted project into a situation of fund shortages and progress delays (Yu, 2009).

According to Harris and McCaffer (2014), the contractors' financial capacity is the resource he requires to smooth the progress of implementation of the construction work on site. It is made up of money at hand bank credit, overdraft, credit purchases, and work-in-progress and invoiced, amount. Financial capacity also includes resources needed to grease the daily business of the construction firm. Managing financial capacity includes planning, sourcing, and controlling the use of financial capacity during construction. The sufficiency of financial capacity depends on correct financing at all times during construction. Nwude (2010) observed that it requires a determined positive effort by the contractor as mismanagement can weaken productivity and profit level.

To ensure successful project execution there must be adequate financial capacity. Rahman (2013) observed that monetary strength of contractors and sufficient cash flow is critical in keeping construction progress as planned. Ameh and Osegbo (2011) observed that inadequate funds lead to time overrun and sufficient funding guarantees reasonable cash flow.

Hatush and Skitmore (1997) conducted systematic research on major pre-qualification indicators for contractors and divided contractor selection criteria into five categories: financial position, technical ability, management ability, health and safety, and reputation.

In further research, they concluded that financial position is the indicator which contract issuing parties value most. Indicators that can be used to examine construction contractors' financial position include financial stability, credit rating, financing ability, etc. In subsequent related research, Hatush and Skitmore (1997) ranked all contractors attribute indicators in terms of their influence on project progress. The result showed that construction contractors' financial capability tops all indicators regarding their influence on project progress, quality and cost. If project subcontractors meet with financial problems, it may delay project period by 23%, exceed cost budget by 37% and lower project quality by 17%. Financial position, financial institution's financing ability, credit rating and financial stability, all of which are sub-indicators of enterprises' financial capability, rank as the most important indicators that influence the three major success factors of projects (progress, cost and quality). Project contract issuing parties will select construction contractors with financial capability to reduce risks and ensure project quality. The significance of financial capability for construction contractors is that it helps them win high opinions from project owners in the bid evaluation stage and promotes project implementation and easing risks in the construction process. Contractors' financial ability is very important for project successes. If a contractor has weak financial ability and lacks sufficient funds to complete a contracted project or delays project completion due to fund shortages or meet with deteriorating finance and run bankrupt in the construction process, big losses and even disastrous consequences will be caused to project owners (Liu, 2008).

2.8.2 Subcontractors experience and qualifications

In an early questionnaire survey of contractor conducted by Nwude (2010) 100% of the interviewees said that when selecting contractor, they would look into contractors' past

experience as an indicator. Some interviewees thought that contractors past experience should receive more attention than the tender price. As unexpected problems often happen during construction, past experience in handling accumulated problems is contractors' asset. Construction contractor past experience mainly includes the size and type of projects completed in the past. This indicates contractors' technical level, size, image and reputation. In addition, it includes contractors' local construction experience and business history is also an important measuring indicator.

Luis and Claudio (2002) held that attributes at the strategic level ultimately determine contractor performance. The strategic level embodies the nature of projects and contractors. It includes the three aspects of status of internal relationship, initial conditions and pre-qualification. Among the five pre-qualification attributes indicators, two are contractor experience attributes. (Du *et al.*, 2016) These are, respectively, the contractor's overall construction experience and experience of cooperation with project owners. Overall construction experience can be measured by the total project space completed by contractors. In particular, the completed space of similar projects is an indicator which has received a great deal of attention. Project owners will not accept contractors which lack experience. Project owners naturally choose construction contractors with whom they have had good cooperation experiences. Cooperation experience can win trust and even selection advantages for construction contractors. In addition, construction contractors who have cooperated with project owners know the latter's organizational structure, corporate system and habit of doing things better, paving the way for contractor promotion work. In their project subcontracting, contractors will usually select experienced subcontractors for stable performance (Nwude, 2010).

The quality of a subcontractor's construction team directly affects project quality and duration. It plays a decisive role in determining a project's economic performance. An actual subcontracting market has not yet formed, and there are limited subcontractor choices for contractors. The result is that some construction teams without qualification or with insufficient qualifications have entered the subcontracting market, causing the occasional occurrence of quality problems, rework, repair and even complete reconstruction, with project costs increasing as a result. In addition, some contractors have subcontracted specific works to unqualified subcontractors to maintain special relationships or lower project cost, leaving hidden dangers of uneven contract performance (Liao, 2005).

2.8.3 Enterprise and project managers knowledge of subcontractors

A subcontractor's past performance and past customer relationship are important selection criteria for contractors. For their part, contractors often favour subcontractors they have previously cooperated with. Such cooperation experience can reduce subcontractor performance uncertainties and help contractors to select suitable subcontractors. In their performance evaluation models for contractor selection, Burcu and Martin, (1998) and Luis and Claudio, (2002) pointed out that the pre-qualification stage is extremely important for project owners in evaluating contractors and for contractors to assess subcontractors. In their selection of subcontractors, contractors often pay attention to whether subcontractors have had much experience of cooperation with them. This can be measured from the duration of cooperation with subcontractors and the number of projects which subcontractors have completed for contractors. Long-term cooperation between contractors and subcontractors helps them to know each other well, reduces contractors' project management difficulties

and guides subcontractors in performing well in terms of project durations, cost control and safety assurance.

A construction subcontractor's past project implementation record foretells their future performance. It also shows their contract execution abilities, (Fang and Wang 2000). Past performance covers assessing construction contractors' cost control, project duration guarantees, quality control and safety performance in their completed projects. Jha, and Iyer (2006) distributed questionnaires to survey construction enterprises' specialists in India and used software analysis to bring out the key factors of project quality successes. They found the primary cause of project quality failure in conflicts between project participants. The success factors included project participants, supervision and feedback, as well as mutual communication and cooperation. Construction contractors' past disputes or conflicts with customers or other participating parties undermine the mutual trust between construction contractors and their clients. Their willingness to provide information and make mutual concessions is weakened.

Hatash and Skitmore (1997) established a standard framework for subcontractor selection. In their research, they pointed out that a construction contractor's past customer relationship affects its corporate reputation and, to a certain extent, its performance in this regard determines whether construction contractors will be selected by tendering companies.

2.8.4 Subcontractors tender price

Bidding quotation is a comprehensive embodiment of bidders' corporate abilities in management, market contingency, cost control and technological innovation. Though not the only factor for winning bids, it is nevertheless indicative. Quotations offered by subcontractors have long been an indicator of the greatest concern to contractors in their

tendering work. In their surveys, Hatush and Skitmore (1997) concluded that in the overall evaluation process, tender price is the only criterion that all customers are concerned about.

A lower tender price is more attractive to customers than the other aspects.

All construction enterprises need to improve their competitiveness, reduce costs and improve profits. When contractors adopt tender methods whereby no minimum price is guaranteed and the reasonable low price wins the bidding, construction enterprises are forced to lower their quotations and profits in order to win bids (Markarfi 2017). After getting a low subcontracting price, contractors should consider the possibility that the construction enterprise winning the bid and its project managers may have a negative attitude toward the project due to its low profitability. This is not conducive to a contractor's project management. (Ibrahim, 2012) After achieving a low quotation from subcontractors, contractors may face high risks, low efficiency and low marginal utilities in project construction. To win bids, subcontractors have to lower their quotations. This may result in a cash flow crisis (Kenneth *et al.*, 2009). Eventually, subcontractors may demand more costs or delay project completion. In practical surveys, over-budget cost and project delays are common in construction. Contractors are the biggest victim of overspending, which may lead to a financial crisis for the contractor. In their subcontractor selection, contractors need to pay attention to the quotation and the cost guarantees of subcontractors (Xiao, 2002). Many subcontractors often had to lower their quotations to increase the possibility of winning contracts. In such a situation, a contractor can lower its own costs by reducing procurement costs. However, the consequence is that to make profits, subcontractors can only seek ways to reduce investment and costs, while barely meeting project requirements. Eventually, this may result to drop in project quality. Hatush and Skitmore (1997) pointed

out that in the final stage of tendering, tender issuers often select the bidder with the lowest tender price. This practice taking price as the most important consideration has long been controversial. Those who oppose using price as a key selection indicator argue that construction projects are not merely a kind of ordinary consumer goods. Rather, these projects involve time costs, project quality and various possible risks in the construction process. In a study of how to select project contractors. Xiao (2002) pointed out that contractors should ideally adopt the principle of reasonable low quotation winning the bid and select the bidder with the lowest quotation of all bidders, but whose quotation is not lower than a certain cost figure.

2.9 Expatriate and Indigenous Construction Contractors in Nigeria.

Contractors are one of the major players in the construction industry. They are responsible for executing most of the construction programmes for the three tiers of government in Nigeria, their parastatal and the organised private sector. Therefore, the success or failure of construction projects and the supply and quality of construction products are largely determined by their performance. In separate studies, Edmonds (1984), Ogunpola (1984), Olateju (1991), Mayaki (2003) and Idoro (2008) classify construction contractors operating in Nigeria into indigenous and expatriate contractors.

A Nigerian Indigenous contractor can be described as an individual or a private establishment constituted in line with the February 1972 Nigeria Enterprises Promotion Decree, whose ownership and capital base is totally Nigerian, and has its base of operation only in Nigeria This is similar to the description of which described Indigenous contractors as contracting organisations which is owned and entirely managed by Nigerians. On the other hand, Foreign contractors in Nigeria can be described as contracting firms whose

ownership and capital base are exclusively foreign, and has its base of operation not only in Nigeria. Olateju (1991). Idoro (2008) discovered that expatriate contractors are few in number, operate on a large scale and execute the majority of contracts in Nigeria; in contrast, indigenous contractors considerably outnumber their expatriate counterparts and operate on small and medium scales, but they are responsible for a very small proportion of the value of contracts executed in Nigeria. These two parties collaborate with consultants to monitor and control projects to ensure that they are delivered within the scheduled time and cost and to the required quality standards.

The debate on project performance in the Nigerian construction industry (NCI) centres mainly on the performances of foreign and indigenous contractors (Idoro and Akande 2008). Nigerian Indigenous contractors focus very much on survival due the absence of a distinct policy to ameliorate the sustenance and development of Indigenous construction firms in Nigeria (Ogbu, 2017). And because they have to compete for 5% share of the construction projects. Indigenous contractors are stiffened to formulate and implement practices that will ensure their survival (Ogbu, 2017). One of these practices involves the indigenous contractors often succumbing to the pressure of bidding to win the contract at any cost to get returns on capital/assets employed (Oladimeji and Aina, 2018). Several of these practices aim to win the contract rather than the project's success (Olatunji *et al.*, 2018). This thus accounts for the reason why the Indigenous contractors fail in preparing adequate project plan which is crucial for good cost and time performance (Inuwa, *et al.*, 2015). Idoro (2008) asserted that indigenous contractors are often relegated and rarely awarded large-scale construction projects. This has been partly attributed to the poor management of funds and resources which can result in miserable project execution, bankruptcy, and in a worst-case

scenario result to complete project abandonment. Most studies reported that projects handled by NICs are characterized by poor planning, workmanship, mechanisation, management capability, cost and time overruns, financial difficulties, high frequency of litigation and project abandonment. These are asserted as the results of inexperience, incompetence, adoption of traditional management methods; and poor innovation and dynamism (Ogbu, 2017). This is the reason why in the construction market, foreign construction firms which account for just 5% of the number of contractors in the formal sector controls 95% of the main public projects. This can be explained by the fact that foreign construction firms have a huge capital base and human resources that is well managed to handle their various activities (Tsado, *et al.*, 2019). Foreign firms are considered to be technically and managerially superior. They are also viewed as more efficient in funds acquisition and project execution than the indigenous firms who are left with the remaining 5% share of the market (Odediran, *et al.*, 2012) Numerous problems are confronting the NICs concerning the provision of an environment that encourages sustainable development. Some of the major problems include the absence of government enabling policies, lack of government patronage, poor technical expertise and unfavourable business conditions Also, the essential potentials required to handle globalization challenges remains a serious issue to all involved in the Nigerian economy (Ogbu, 2017). Stakeholders and clients are constantly criticizing the NICs for its poor project performance. The poor performances of NICs have been blamed for the inability of the NCI to deliver services efficiently and effectively.

2.10 The Concept of Performance in Construction

Hong and David (2003) opined that subcontractor performance is critical to the successful completion of any construction project and the term “performance” as regard Hong to

construction projects denotes effectiveness in the construction processes and the finish product of a construction project. Performance as defined by Hong and David (2003) embraces construction cost, construction time, construction quality and sustainable development, while project and contractor performance has been the subject of much research.

Project success can be described as the attainment of goals dictated by the project plan. Therefore, a successful project can be depicted as attaining its technical performance, sustaining its schedule and executing within budgeted cost, time and specified quality (Oke, *et al.*, 2016). In managing a project, the role of the tools and techniques of project management cannot be overemphasized. In project management, time, cost, quality target and participation satisfaction are the major parameters for assessing project success and performance. This is in consonant with Fagbenle *et al.* (2018), which asserts that the success and performance of a project radiates around cost, quality and time, and the needs of clients are generally within these terms. Time overrun can result in cost overrun and low quality, a global phenomenon. For instance, if there is a variation during the construction of the substructure of a building that results in an increment of the time allotted to it on the project schedule, this can increase the construction duration from 16 weeks to 18 weeks. Furthermore, the cost of materials such as cement might increase during this additional period, which might increase the initial contract sum, and this increase might exceed the limit of the contingency sum provided. In addition, the contractor might also request for an additional sum to cover his overhead cost. In this case, time overrun can be said to have resulted in cost overrun. Fagbenle and Makinde (2010) also noted that it is also commonly agreed among researchers that client needs are generally in terms of time, cost and quality

and usually, project success is measured on these terms. Fagbenle *et al.* (2018), noted that every project manager must aim to achieve a project within predefined time, cost and quality constraints. These three factors play significant roles in achieving project objectives; this is also true for subcontractors since about 80-90% of building projects are procured through subcontracting.

2.11 Performance Indicators in the Construction Industry

Fagbenle and Makinde (2010) opine that subcontractors are important part of the specific project construction process. Their performance is directly reflected in a construction project's duration, quality and cost aspects.

2.11.1 Project duration

The increasing importance of time in our globalised society has affected the construction industry in form of shortened project schedules. Project durations simply the number of days/weeks/months from start to completion of the project (Since time can be a critical issue for many clients. Project duration is often of prime interest. (Kocak *et al.*, 2018) However, schedule overruns may be an even more important issue. Project time is calculated in terms of the percentage increase in the actual completion time and over initial completion time i.e. the actual completion time and planned completion time multiplied by 100.

Time overrun is a failure to complete a project within the targeted time frame or contract schedule. It occurs when execution of each project phase takes more time than allotted in the scheduled of works. It may be caused by the action of one party to the contract or might be a direct outcome of one or more circumstances. The alarming rate of project delay and cost overrun is one of the most pressing concerns in the construction industry of most developing

countries. This has inauspiciously affected the provision of infrastructure in countries within sub-Saharan Africa, Nigeria as a point of reference (Babagana, 2020)

2.11.2 Project quality

Quality of a project can be measured in terms of adherence with stated Specifications and this can be difficult at times to measure because it is subjective Quality is expressed as the standards expected of a particular project especially from the point of view of specification prepared at the inception of such project. This quality, to some extent, believed to be the level of ‘conformance with client’s plan, specifications, acceptable codes and standards’ (Leong, *et al.*, 2014), or ‘fitness of purpose defined quality as the positive worth of a product or service in relation to its conformance to requirements, suitability for use, and potential for ensuring satisfaction. Nzekwe (2010) averred that quality can be summarized as the customer’s perception of that delivery (product or service) which surpasses expectations. Leong, *et al.* (2014), stressed that construction projects need to be handled in such a manner that they will conform to requirements, that fulfill the intended need and ensure satisfaction, both from clients and users. In view of the foregoing, quality is a critical prerequisite and determinant of competitiveness through which customer relationship is established and sustained.

Leong, *et al.* (2014) identified three important components of quality management: quality planning, quality assurance and quality control. In this description of the three components of quality management, the body considers quality as synonymous with management. Oakland (1995) defines quality control as essentially the activities and techniques employed to achieve and maintain the quality of a product. describes quality as all planned and systematic actions necessary to provide adequate confidence that a product or service will

satisfy given requirements for quality. In construction, these actions are numerous spanning designs, tendering and construction and several individuals and corporate bodies are involved.

Quality is an important feature of construction because the safety of every structure and, more importantly, stakeholders' satisfaction with the structure depend on its quality. Research studies have shown that quality has numerous effects on a project. Bhutto *et al.* (2004) opine that construction companies have taken the implementation of quality management systems the way organizations in the industrial sector do. However, the reasons for such implementation may differ. In an earlier study, Bhutto *et al.* (2004) discover that quality standards implementation in the construction industry is more management driven with perceived efficiency gain. The effect of quality can be understood from the importance attached to it in the assessment of project performance.

Adams (2021) discover that certain quality management practices significantly impact company's performance in terms of quality, profitability and productivity. They discover that quality interventions have significant influence on productivity. The issue of quality performance of construction projects in Nigeria had resulted in the collapse of several structures, colossal waste of human and material resources and in most of the cases, the indigenous contractors were found culpable.

2.11.3 Project cost

Cost is the major consideration throughout the project management life cycle and is the most important factor for a successful project delivery (Emmanuel and Anjiba, 2015). A project is successful if it is completed within predetermined sum. Project cost performance is measured in Chan and Chan, (2004). terms of cost overrun i.e. final sum minus initial

contract sum divided by the initial contract sum multiplied by 100. Cost overruns can be a source of problems for an unsuccessful project as contractors are criticized for the common occurrence of cost overrun in construction project (Cost overrun is almost associated with all projects in construction industry. Projects with percentage cost overrun above 20% is regarded as poor project in terms of cost performance; project that fall within 10% and 20% is regarded as average project in terms of cost performance, while project with cost overrun of less than 10% is regarded as an outstanding project (Kometa, *et al*, 1996). Construction projects in developing countries are mostly completed above initial budget as a result of improper management. Project cost performance has traditionally been seen as one of the most important aspect of construction project, if the economy of the project is off, the project can rarely be seen as a success (Oke *et al*, 2016).

Earned Value Analysis (EVA), issued to evaluate cost performance of different types of projects. Cost control, cost estimating, and cost budgeting are three cost related processes that interact among each other and with other scopes of construction projects. Besides that, Gido and Clements (2003) stated that four cost-related measures in cost performance analysis are used to analyse cost performance of a project. The measure is used to evaluate whether the project is being performed within the budgeted cost or is in line with the actual cost. The four cost-related measures are TBC (total budgeted cost), CBC (cumulative budgeted cost), CAC (cumulative actual cost), and CEV (cumulative earned value).

Normally, cost estimation will be made before starting a project to control it within cost budget. A project may require more than one person and may occur more than once during the life of a project depending on the project's complexity. It may be very simple or

extremely complex when managing the cost of project. In project management, it should also consider the needs of project stakeholders in the project cost (Gido and Clements, 2003).

2.11.4 Overall project performance

Success of performance is a determinant of the success of construction projects (Akani *et al.*, 2015). Construction project performance measurement is the process of appraising performance with projects objectives in focus (Oke, *et al.*, 2016). Researchers and organizations have traditionally focused on the three critical project performance indicators of cost, time and quality (Swan and Khalfan, 2007). However, many studies have, also included other performance aspects, such as health and safety environmental performance, customer satisfaction (Collins and Baccarini, 2004), and innovation, but the main client project objectives focus more on three factors critical to projects success including cost, time and quality (Walker, 2007; Adamu *et al.*, 2017). Oke *et al.*, (2016) indicate that time, cost and quality objective together with project satisfaction tend to become the most significant key to measure the complete performance of a project. Furthermore, as remarked by many studies, most projects record cost or time overrun during the period of execution (Oke, *et al.*, 2016).

Stakeholders' satisfaction has become prominent in the modern approach to performance measurement, and clients remain the most important stakeholder when considering project performance. Kotler, (2000) maintains that satisfaction can be understood as a person's satisfaction or disappointment resulting from the performance of a product as compared to the person's expectations. Products are generally all about the customers' expectations, and their performance should also be about the customers' feelings. Clients are the customers in construction projects. Their requirements are the focus of projects, and project objectives are

derived from clients. Thus, it follows that project performance should be about the clients' feelings and satisfaction. Neto *et al.* (2007) state that matching or exceeding the client's expectations results in a satisfied client. They argue that meeting client's expectations can reflect how loyal a client becomes to a provider or a brand and can result in higher sales, lower levels of sensitivity to price and positive comments about the provider and the brand. Idoro (2008) maintains that the clients' satisfaction can be measured from several perspectives. However, three parameters, time, cost and quality, remain the most prominent in research studies. Josephson and Lindstrom, (2007) argue that the project goal, which considers the clients' goals, is measured from several perspectives, but the main aim is to prompt clients to identify and clearly present their goals and to motivate all managers involved to inform and remind all individuals of the project goals. Hatush and Skitmore (1997) maintain that the success of a project is generally factored into time, cost and quality. Josephson and Lindstrom, (2007) note that clients' primary concern is the completion of the project within the budget and deadline and at the required level of quality.

2.12 Factors Affecting the Performance of Subcontractors

The specific pressures for sub-contracting in construction combine in such a way as to make the idea of a general contractor (employing directly all of the labour) a thing of the past. Idoro (2008) argue that the factors affecting a contractor's decision to employ permanently or to sub-let are numerous, but are rarely directly considered as specific choices over whether to sub-let. The nature of construction dictates that sites are geographically dispersed, meaning that some workers will be better placed for some sites than for others. Since an itinerant workforce is a thing of the past, the time to commute with the site from home will

mean that employers are more inclined to employ local workers. Associated with the general pressure to specialize, mentioned above, is the fact that different types of project call for different types of skill. The pattern of required skill combinations is different for each project. Combined with the geographical constraints, it makes little sense for contractors to keep permanently employed craftsmen in all of the necessary trade within each activity region. This situation is tempered when the skill needed is specific to the firm itself, such as many middle-management roles, because the training overhead is high in this situation. Therefore, it is more economical to employ such specialists permanently, even if they are not fully utilized (Akintude 2003). Like any other production procession, subcontracting typically starts when an organisation realizes that it needs a particular set of skills or product that are not available within the organisation and as readily available in the market place (Ravi, 1999).

2.12.1 Managerial skills

Management has the most significant influence on the continual survival of construction firms (Odediran *et al.*, 2012). According to Mansfield *et al.* (1994,) management challenges may occur during a project due to the way contracts are awarded. In most cases projects are awarded to the lowest bidders and some of these low bidders may lack management skills and over all site management and allocation skills. Wasi *et al.* (2001) noted that deficiency in planning and management skills is the greatest single problem for the contractor. Management is very important to adequately face difficult challenges because it would be impossible to manage workers, materials, resources and the whole construction project successfully without managerial skill.

2.12.2 Financial management

Financing a project is a very tasking job. All resources need to be controlled: labour productivity, material availability, material waste, good and effective methods, using effective tools, equipment, good project planning and scheduling (Eshofonie, 2008). According to Wasi *et al.* (2001), sometimes project funds can be used for personal matters which could lead to financial strain in projects. Financial factors such as insufficient profit, heavy operational expenses, insufficient profit, country's economic conditions, poor estimating and job costing are also identified as causes of failure (Amoah, *et al.*, 2011). According to Odediran *et al.* (2012), majority of these firms do not have the capacity to finance a project after from the finance originally contributed by the client and therefore cannot go into long term financing and partnership. Wasi, *et al.* (2001) also stated that most of the projects handled by indigenous companies are funded by the clients' personal funds. These firms most times do not get bank loans to finance the project, and there is also a poor saving culture among the organizations.

2.12.3 Time factor changes variations

This challenge can occur from inadequacy of project planning and management of the design process. It can also be a fault on the part of the architect and structural engineer in their architectural and structural designs respectively. There might be variations in their drawings. The client can also change his mind about a particular design and changes would have to be made. Frequent changes to design can cause workers to lose interest in the project. Examples of other time factors include time needed to rectify defects, site preparation time, percentage of orders delivered late, (Azlan and Ismail, 2009.)

2.12.4 Cost factor-material and equipment cost

Material and equipment cost are project cost components that affect owner's liquidity and project budget. Most heavy equipment run by diesel fuel and the price of diesel fuel has increased significantly (Eshofonie, 2008). Also, unreliable material base and unavailability of plants and equipment can affect a project. In order to meet certain production targets and carry out projects on time, it is necessary to introduce mechanical plants and equipment to improve man power. Other cost factors include cash flow of project, project design cost, overhead percentage of project, profit rate of project, waste rate of materials.

2.12.5 Quality factors

Due to the nature of construction companies, most firms lack the availability of competent staff as hiring a well-qualified staff with experience can be too expensive for the company. Thus there may be challenges during a project, like workers or contractors not following the right procedures or working according to the specifications. Using substandard raw material to save costs may also be challenging. This can reduce the life span of the building, risk the lives of occupants, increase maintenance work and even cause the collapse of a building. Other quality factors include quality assessment systems in the organization, and quality training/meeting (Ugochukwu and Onyekwena, 2014)

2.12.6 Delayed in the payment for work done

Paying subcontractors on time can be a good source of motivation for them to work and even worker harder. Chronic delay in the payment of subcontractors is a factor that could affect performance in a project. A delay in payment affects the subcontractor's cash flow. Because of the need for cash, he might begin working on other small projects to generate money. By

so doing, he does not pay full attention to the main project, which can lead to performance failure. (Ugochukwu and Onyekwena, 2014).

2.12.7 Low morale and motivation of craftsmen

Motivation is a means of encouraging people to do something. It is a way of getting things done willingly from others. If workers are not motivated to work, their morale will decrease, and their performance will also decrease. Implementing a well-formulated motivation policy triggers the innate qualities of labourers by enhancing their productivity.

2.12.8 Communication

Poor communication skills in construction can be a significant problem. In developing countries, Wasi *et al.* (2001) stated that minimal communication between on-site workers and the subcontractor's office can slowdown a project therefore, binding site problems cannot be solved immediately due to a lack of communication between site workers and subcontractors (Abdullah *et al.*, 2012).

2.13 Strategies for Improving Subcontractor's Performance

Subcontractor underperformance happens within the construction industry. However, in the construction industry, managers and surveyors often rely on the subcontractors' expertise to carry out trades and work they cannot undertake. Trusting, expertise is vital to delivering multifaceted projects on time and within budget (Callum, 2020). When a subcontractor underperforms, it can have dire consequences for the project and those involved, from operatives to stakeholders. This is why potential shortcomings must be spotted through early warning signs and prevented. Failure should be addressed immediately (Ahmed and Abdullahi 2017).

Subcontractor reliability and performance are essential to the success of a project. When subcontractors underperform, it is frustrating and time-consuming, bringing the construction contract to a grinding halt. The following strategies can be used to improve subcontractors' performance;

1. Ensure the subcontractor has the necessary resources, tools, and equipment to complete the work. A survey by Hong Kong Construction companies shows that equipment-intensive subcontractors perform far better in project delivery (Thomas *et al.*, 2019).

2. Communicate project changes and updates to the subcontractor promptly and transparently. In the construction industry, subcontractors are subjected to tremendous pressure regarding quality, services, and cost, negatively affecting their performance (Ander *et al.*, 2007). To overcome this, the subcontractors must work closely with the construction project's main contractors, suppliers and stakeholders.

3. Establish clear and open lines of communication with the subcontractor throughout the project. Effective communication is vital to the successful completion of any construction project. Good communication can improve team work and lead to better collaboration and subcontractors' performance

4. Conduct regular progress meetings with the subcontractor to monitor performance and identify issues. Practical steps should be taken to track subcontractor performance against the predetermined targets. KPIS (Key Performance Indicators). These can be achieved based on the project (Callum, 2020).

5. Provide incentives for good performance and penalties for poor performance. As with most performance-based industries and tasks, motivating subcontractors on construction

projects is commonly managed using positive and negative methods like financial incentives for finishing on time or financial penalties for finishing behind schedule or over budget (Bolton *et al.*, 2022).

6. Provide training and support to the subcontractor as needed. Offering training courses, CPD, the chance to obtain certification, the contractor can be rewarded by a client who invests in them, usually on long-term projects, where future phases are available.

7. Subcontractor performance when awarding future contracts. Subcontractors can be added to the approved contractor's list, who will be used again on future projects, thus creating work for themselves by performing well (Tang *et al.*, 2018).

8. Clearly define the scope of work and expected outcomes in the subcontractor agreement. All information should be provided, the scope of work well defined, and there should be a proper agreement before work starts. All targets must be reasonably practicable, achievable, and agreed upon by everyone (Cook-Davies, 2012).

9. Ensure the subcontractor has the necessary resources, tools, and equipment to complete the work. Selecting the proper tools or equipment for a particular job is essential in maintaining a safe workplace. Having the right equipment and tools help subcontractor to deliver a project fast within budget and time frame.

10. Conduct regular inspections and quality control checks of the subcontractor's work.

CHAPTER THREE

3.0 RESEARCH METHODOLOGY

3.1 Research Design

A research design is a research strategy, or a plan to answer research questions (Creswell and Plano, 2018). It is a frame work that includes the methods and procedures to collect, analyse, and interpret data. In other words, the researcher's design describes how the researcher will investigate the central problem. The research design influences the data collection type and its results. It also defines all other constituent parts of a study, such as variables, hypotheses, experiments, methodology, and statistical analysis (Creswell and Plano, 2018). Research design may fall into one of the following three categories: exploratory, descriptive, and causal or experimental research design (Dawadi *et al.*, 2021)

In this research, a descriptive research design was adopted. Descriptive design was used because it seeks respondents' opinions on the performance of indigenous and expatriate subcontractors on building projects executed. Descriptive research aims to accurately and systematically describe a population, situation or phenomenon (Kotthari and Grag, 2014). It can answer what, where, when and how questions, but not why. Thus, a quantitative approach was adopted for this research, using carefully designed, well-structured questionnaires to provide data necessary for the study analysis.

3.2 Research Population

A population is a group of individuals, events, or objects having common characteristics and, in any project, there must be a targeted population. A targeted population is a defined unit, persons or objects from which research findings can be generalised (Mugenda, 2021). The population for this research consists of some selected professionals such as builders,

civil engineers, Architects, quantity surveyors, and estate surveyors in the building construction firms in Abuja.

3.3 Sampling Frame

Sampling frame is a list comprising all the unit of the sample of a giving population. It constitutes the entire population that interests the researcher (Creswell and Poth, 2018). The sampling frame for this study consists of two thousand two hundred and fifty-one (2,251) selected registered construction professionals in Abuja.

Table 3.1: Details of population of the study

S/N	Professionals	Number
1	Quantity Surveyors	410
2	Builders	500
3	Architects	385
4	Estate Surveyors	336
5	Civil Engineers	620
Total		2,251

The sample size for this study was determine using the Yamane’s formula as shown below

$$n = \frac{N}{1 + N(e)^2}$$

Where:

n = desired sample size

N = population of the study

e = confidence level or precision of sampling error.

From the population of 2,251, the sample size choosing is 320. This is the number of questionnaires that were distributed amongst the respondents. The study employed random sampling technique to distribute the designed questionnaires to the respondents of the study. Out of the 320 questionnaires administered during the survey, 272 were completed and returned, representing 84% response rate.

3.4 Sampling Technique

The sampling technique is a procedure or device employed by a researcher to systematically select a relatively small number of representative items or individuals (a subset) from a pre-define population to serve as subjects (data source) for observation or experimentation as per objectives of a study (Sharma, 2017). There are two significant types of sampling techniques: probability and non-probability sampling. The probability sampling method is divided into random, systematic, stratified, and cluster ((Kabir, 2016). A random sampling method was adopted in this research and was used to collect all the data needed for this study. In a simple random technique, every member of the population has an equal chance of being selected (Creswell and Poth, 2018). The researcher can use tools like random number generators or other techniques based entirely on the chance to conduct this type of sampling.

3.5 Data Collection Instrument

The data used for this study were primary data. According to (Kabir, 2016) primary data refers to first-hand information obtained by the researcher. The instrument used for data

collection is a well-Structured closed ended questionnaire to answer the research questions by the respondents. The questionnaire was pre-tested to ensure its reliability and validity following proper guide line.

3.6 Data Reliability Test

The data underwent a reliability test using Cronbach's alpha coefficient to assess its suitability and dependability for the study. Following the guidelines proposed by Maree and Pietersen (2016), Cronbach's alpha coefficient values of 0.90 are considered highly reliable, 0.80 moderately reliable and 0.70 less reliable. The reliability of the data was presented, revealing adequate reliability of 0.874, thereby meeting the requirements for the study

3.7 Procedure for Data Collection

A questionnaire is a list of questions or items used to gather respondents' data about their attitudes, experience, or opinions (Kabir, 2016).). The printed questionnaire was self-administered to the selected registered building construction professionals in Abuja. The questionnaire was designed in line with the research objectives. 320 questionnaires were distributed to the respondents and 272 was completed and returned which represents 84%.

3.8 Method of Data Presentation and Analysis

The data collected from the field was analysed using descriptive and inferential statistics, such as mean, median, standard deviation, factor analysis, and using Statistical package for social sciences version 20 (SPSS) software. Cronbach's alpha (α) and regression analysis Mean Item Score (MIS) was used for ranking of the Variables obtained in each objective of the study. The data for this research are presented in tables for better understanding.

CHAPTER FOUR

4.0 RESULTS AND DISCUSSIONS

4.1 Characteristics of the Respondents

The characteristic of the respondents is shown in Tables 4.2 while table 4.3 show the percentage analysis of the organizational characteristics of the respondents. Total of 272 responses were analysed and contained in the respondent's characteristics. Based on Table 4.2, the age of the respondent is categorized into four phases as 20-30 years with the lowest representation of 7.35%, followed by 31-40 years with the highest representation of 43.75%, 41-50 years having representation of 34.92%, and 50 years above with representation of 13.98%. Gender representation shows that males have the highest percentage, with 71.33%, and females 28.67%. Respondents with Bachelor's degrees have the highest participation in the study with 53.68%, Master's degree having 24.63%, Higher National Diploma having 13.97%, and Doctorate with 7.72%. Respondents with 1-5 and above 20 years of working experience have the least representation with 11.76% and 9.93%, respectively, followed by 16-20 years with 13.97%. Respondents with 6-10 and 11-15 years of experience have the highest participation, with 33.83% and 30.51%, respectively. The Builders and Engineers have the highest participation. The Estate managers have the lowest participation, as shown by ARCON (18.75%), CORBON (33.45%), COREN (35.66%), ESVARBON (4.04%), and QSRBON (8.10%), Also showed in 4.2 is the organizational characteristics of the respondents with indigenous sub-contractor and Expatriate sub-contractor representation of 26.47% and 73.53%, respectively. 31.25% and 33.45% of the organizations have a capacity of 1-50 and 51-100 employees, followed by 101-150 employee capacity representing 29.04% and above 150 with the smallest representation of 6.26%. Results show that based

on the business ownership type, 30.53% are involved in a partnership, Private limited liability (25.74%), Public limited liability (19.85%), and Sole proprietor (23.88%). Furthermore, most organisations (48.16%) execute projects with private clients, followed by the public with 44.12% and 7.72% with private and public clients.

Table 4.1: Characteristics of the Respondents

Respondent Characteristics		Frequency	Percentage%
Age	20-30	20	7.35
	31-40	119	43.75
	41-50	95	13.98
	Above 50	38	12.66
	Total	272	100.00
Gender	Female	78	28.67
	Male	194	71.33
	Total	272	100.00
Academic Qualification	HND	38	13.97
	B.Sc.	146	53.68
	Master's degree	67	24.63
	Doctorate	21	7.72
	Total	272	100.00
Years of Experience	1-5	32	11.76
	6-10	92	33.83
	11-15	83	30.51
	16-20	38	13.97
	Above 20	27	9.93
	Total	272	100.00
Professional	Architects	51	18.75
	Builders	91	33.45
	Civil Engineers	97	35.66
	Estate Surveyors	11	4.04
	Quantity Surveyors	22	8.10
	Total	272	100.00

Table 4.2: Organizational characteristics of the respondents.

Respondent Characteristics	Frequency	N	Percentage
Type of Sub-contractor	Expatriate sub-contractor	72	26.47
	Indigenous sub-contractor	200	73.53
	Total	272	100
Number of Employees	1-50	85	31.25
	51-100	91	33.45
	101-150	79	29.04
	Above 150	83	30.53
	Total	272	100
Business Ownership Type	Partnership	83	30.53
	Private limited liability	70	25.74
	Public limited liability	54	19.85
	Sole proprietor	65	23.88
Total	272	100	
Project Client	Both	21	7.72
	Private	131	48.16
	Public	120	44.12
	Total	272	100

4.2. Elements of Building Works Subcontracted to Expatriate and Indigenous Sub-contractors

This study identifies fourteen elements of works subcontracted to Abuja construction firms subcontractors. The respondents were asked to respond to a questionnaire survey on a scale of five to investigate the elements subcontracted to expatriates and those subcontracted to indigenous subcontractors. The elements were ranked using a mean score based on their execution level. The following scale shows how frequently the indigenous and expatriate subcontractors execute each construction element. Very High (4.50 to 5.00), High (3.50 to 4.49), Moderate (2.50 to 3.49), Low (1.50 to 2.49), and Very Low (0.00 to 1.49). Table 4.3

shows the most frequently executed construction element by the indigenous subcontractor is the roof (Mean = 4.56; rating = very high), followed by substructure (Mean = 4.38; rating = high), electrical installation (Mean = 4.34; rating = high), mechanical installation (Mean = 4.29; rating = high), and stairs (Mean = 4.11; rating = high). Consequently, the least executed construction elements by the indigenous subcontractor are service equipment (Mean = 3.82; rating = high), followed by disposal installations (mean = 3.83; rating = high), swimming pool (mean = 3.91; rating = high), sanitary appliances (mean = 3.95; rating = high), and external works (mean = 3.96; rating = high).

Table 4.3 also showed the construction elements which the expatriate subcontractors in Abuja frequently handle. The mean score ranges between 4.46 (high) and 3.85 (high). Top-ranked construction elements frequently executed by the expatriate subcontractors are sanitary appliances (mean = 4.46; rating = high), which is ranked highest, followed by external works (mean = 4.25; rating = high), services equipment (mean = 4.18; rating = high), swimming pool (mean = 4.18; rating = high), and disposal installations (mean = 4.18; rating = high). The least frequently executed construction elements by the expatriate subcontractor are the curtain wall (mean = 3.85; rating = high), stairs (mean = 3.93; rating = high), mechanical installation (mean = 4.07; rating = high), and roofs (mean = 4.09; rating = high).

Table 4.3: Elements of building works subcontracted to indigenous and expatriate subcontractors.

Indigenous Subcontractor			Expatriate Subcontractors				
	Elements	Mean	SD	Rating	Mean	SD	Rating
1	Roofs	4.56	0.7	Very High	4.09	0.967	High
2	Substructure	4.38	0.719	High	4.09	1.027	High
3	Electrical installation	4.34	0.747	High	4.13	0.963	High
4	Mechanical installation	4.29	0.793	High	4.07	0.985	High
5	Stairs	4.11	0.917	High	3.93	1.107	High
6	Finishes	4.11	0.944	High	3.96	0.967	High
7	Frames and upper floor	4.11	1.022	High	4.12	0.926	High
8	Windows and doors	4.1	0.911	High	4.11	0.928	High
9	Curtain wall	4.07	0.978	High	3.85	0.976	High
10	External works	3.96	1.15	High	4.25	0.819	High
11	Sanitary appliances	3.95	1.058	High	4.46	0.857	High
12	Swimming pool	3.91	0.973	High	4.18	0.873	High
13	Disposal installations	3.83	1.118	High	4.18	0.892	High
14	Services equipment	3.82	1.088	High	4.18	0.983	High

The findings shed light on the frequency with which each group executed different elements, allowing for a comparative analysis of their involvement in various aspects of construction.

For the indigenous subcontractors, the results indicated a high level of involvement in several construction elements. Roofs emerged as the most frequently executed element, with a mean score of 4.56, indicating a high knowledge in roofing. This is contrary to the view of Ogbu (2017) which suggests that indigenous subcontractors lack experience in building projects. This suggests that indigenous subcontractors possess extensive experience and expertise in roofing works. Other elements which the indigenous subcontractors usually handle is: the substructure, electrical installation, mechanical installation, and stairs. These findings indicate that indigenous subcontractors actively engage in foundational works, electrical systems, mechanical installations, and stair construction. This view contradicts the findings of Olatunji *et al.*, (2018), which says that indigenous subcontractors are characterised with project failure.

On the other hand, the indigenous subcontractors exhibited a relatively lower frequency of execution in elements such as service equipment, disposal installations, swimming pools, sanitary appliances, and external works. This finding compliments Idoro (2008)'s study that the level of mechanization of indigenous subcontractors in Nigerian construction industry is still low. Although these elements still received a high rating, it suggests that the indigenous subcontractors may have a lesser presence or specialization in these areas.

In contrast, the expatriate subcontractors demonstrate different pattern in terms of the elements handled. They displayed a high frequency of execution in elements such as sanitary appliances, external works, service equipment, swimming pools, and disposal installations. This indicates that expatriate subcontractors bring specialized expertise and knowledge in

these areas. This is in consonance with Tsado *et al.*, (2019) Sanitary appliances, in particular, ranked highest, with a mean score of 4.46, emphasizing the involvement of expatriate subcontractors in sanitary system installations. Other elements that showed a high frequency of execution by expatriate subcontractors were external works, service equipment, swimming pools, and disposal installations. This finding also aligns with Okunlola (2019) view.

However, the expatriate subcontractors exhibited less execution in elements such as curtain walls, stairs, mechanical installation, and roofs. It is worth noting that even in these areas, the usage level still received a high rating, implying a notable presence of expatriate subcontractors.

The comparative analysis of the elements subcontracted to indigenous and expatriate subcontractors reveals their different strengths and areas of expertise for each group. The indigenous subcontractors excel in foundational works, electrical systems, mechanical installations, and stair construction. In contrast, expatriate subcontractors specialize in sanitary appliances, external works, service equipment, swimming pools, and disposal installations.

These findings emphasize the potential for collaboration and knowledge exchange between the two groups. Leveraging the strengths of each group can lead to more efficient project planning and execution. Indigenous subcontractors can benefit from adopting best practices and specialized knowledge from expatriate subcontractors. Similarly, expatriate subcontractors can gain insights into local construction practices and cultural nuances from their indigenous counterparts.

By fostering collaboration and mutual learning, the construction industry in Abuja can leverage the diverse expertise of both indigenous and expatriate subcontractors to deliver high-quality projects across various construction elements. This enhances the industry's overall performance and contributes to its growth and development.

4.3 Suitability of the Subcontractors in Building Elements Executed by Expatriate and Indigenous Subcontractors

Fourteen building elements were identified in evaluating the suitability and performance of the projects executed by indigenous and expatriate sub-contractors. Based on the Likert scale ranking of (1-Strongly disagree; 2 – Disagree; 3 – Neither agree nor disagree; 4 – Agree; 5 – Strongly agree), the respondents ranked the suitability of building elements subcontracted to indigenous and expatriate sub-contractors. The ranking by the respondents were statistically analysed and presented based on the mean score, as shown in Tables 4.4 and. A mean score threshold of 3.5 was set for the study. This same threshold was set in previous construction-related studies by Bello *et al.*, (2023); Olanrewaju *et al.*, (2020) to rank the most critical factors.

Table 4.4: Data Reliability Test for elements of building works subcontracted to indigenous and expatriate subcontractors.

Cronbach's Alpha	N of Items
0.874	14

The data underwent a reliability test using Cronbach's alpha coefficient to assess its suitability and dependability for the study. Following the guidelines proposed by Maree and Pietersen (2016), Cronbach's alpha coefficient values of 0.90 are considered highly reliable, 0.80 moderately reliable, and 0.70 less reliable. In Table 4.9, the reliability of the data was

presented, revealing adequate reliability of 0.874, thereby meeting the requirements for the study

From Table 4.4, the mean score of the indigenous sub-contractor ranges between 4.46 and 3.78. Consequently, the top-ranked performed elements are substructure, electrical installation, roofs, mechanical installation, and stairs. Curtain walls, swimming pools, sanitary appliances, service equipment, and disposal installation are the least ranked performed elements in projects executed by indigenous subcontractors. Based on the mean score, ranked highest is the substructure (Mean = 4.46; SD = 0.571), followed by electrical installation (Mean = 4.44; SD = 0.612), roofs (Mean = 4.43; SD = 0.622), mechanical installation (Mean = 4.41; SD = 0.619), and stairs (Mean = 4.34; SD = 0.703). The least performing is curtain wall (Mean = 4.06; SD = 0.746), swimming pool (Mean = 4.05; SD = 0.929), sanitary appliances (Mean = 3.96; SD = 1.199), service equipment (Mean = 3.85; SD = 1.246), and disposal installations (Mean = 3.78; SD = 1.298).

Table 4.5 also show the performance of the elements in project executed by expatriate sub-contractor on the fourteen selected construction elements. The elements were ranked based on the mean score, which ranges between 4.92 and 3.92. The top-ranked elements are: sanitary appliances (Mean = 4.92; SD = 0.383), service equipment (Mean = 4.89; SD = 0.422), disposal installation (Mean = 4.83; SD = 0.544), external works (Mean = 4.73; SD = 0.655), and swimming pool (Mean = 4.20; SD = 0.894). Subsequently, based on the results, the expatriate performed poorly compared to the indigenous subcontractors on the following elements of works, curtain wall (Mean = 4.04; SD = 0.752), finishes (Mean = 4.02; SD = 0.818), roofs (Mean = 3.98; SD = 0.718), stairs (Mean = 3.96; SD = 0.888), and mechanical installation (Mean = 3.92; SD = 0.871).

The comparative analysis of the suitability of indigenous and expatriate subcontractors in the execution of building elements in construction industry revealed interesting findings. The study examined various construction elements and their respective mean scores to assess the suitability of both groups. These findings provide valuable insights into the strengths and weaknesses of each group, contributing to a deeper understanding of the dynamics within the industry.

Indigenous subcontractors were found more suitable in execution of some building elements. Notably, they excelled in substructure, electrical installation, roofing and mechanical installation. This is inline with the study of Okunlola (2019). These findings indicate that indigenous subcontractors possess strong capabilities in foundational works, electrical systems, roofing, and mechanical installations. Their expertise in these areas suggests a sound understanding of local construction practices and the ability to deliver quality work (Anekwu and Audu, 2010)

On the other hand, indigenous subcontractors were found not in elements such as curtain walls, swimming pools, sanitary appliances, service equipment, and disposal installations. These findings is in agreement with Stretton (2018) view. These results highlight areas where improvement may be needed. To make them suitable in this area, indigenous subcontractors could focus on upgrading their skills and knowledge in these elements. This may involve training programs, collaborations with international firms for knowledge exchange, or adopting best practices from other regions. Conversely, expatriate subcontractors showcased their strength in sanitary appliances, service equipment, disposal installations, external works, and swimming pools. These findings suggest that expatriate subcontractors bring expertise and specialized knowledge. Their high sanitary appliances

and service equipment performance indicates proficiency in complex installations and system integration. These findings also agree with Idoro and Akande (2008) that expatriate contractors are better than their indigenous counterparts in quality performance.

However, the study also revealed areas where expatriate subcontractors were not suitable in elements such as curtain walls, finishes, roofs, stairs, and mechanical installation showed room for improvement. This suggests that expatriate subcontractors may face challenges adapting to local construction practices, materials, or regulations. To make them more suitable in these elements, expatriate subcontractors need to improve on the understanding of the local contents, building relationships with local suppliers, and collaborating with indigenous subcontractors who possess a deeper understanding of the Nigerian construction industry.

The comparative analysis underscores the importance of leveraging the strengths of both indigenous and expatriate subcontractors in the Nigerian construction industry. Indigenous subcontractors can provide localized expertise, cultural understanding, and cost advantages, while, expatriate subcontractors can contribute specialized skills, technological know-how, and global best practices. Fostering collaboration and knowledge exchange between these two groups can enhance overall performance and develop a more robust construction industry in Nigeria. This was also suggested by Callum, (2020) study.

In conclusion, the study reveals notable differences in the suitability of indigenous and expatriate subcontractors in the Nigerian construction industry across various elements. Recognizing these differences can inform decision-making processes, enable targeted improvements, and facilitate successful collaborations between indigenous and expatriate

subcontractors. By capitalizing on each group's strengths and addressing their weaknesses, Nigeria's construction industry can strive for excellence and sustainable growth

Table 4.5: Suitability of the subcontracted elements executed by expatriate and indigenous Subcontractors

SN	Variable	Indigenous Sub-contractor			Expatriate Sub-contractor		
		Mean	SD	R	Mean	SD	R
1	Substructure	4.46	0.57 1	1	4.11	0.69 2	8
2	Electrical installation	4.44	0.61 2	2	4.15	0.71 5	7
3	Roofs	4.43	0.62 2	3	3.98	0.71 8	1 2
4	Mechanical installation	4.41	0.61 9	4	3.92	0.87 1	1 4
5	Stairs	4.34	0.70 3	5	3.96	0.88 8	1 3
6	Finishes	4.2	0.72 9	6	4.02	0.81 8	1 1
7	Frames and upper floor	4.15	0.69 7	7	4.09	0.71 5	7
8	Windows and doors	4.13	0.64 9	8	4.20	0.72 1	6
9	External works	4.09	1.02 1	9	4.73	0.65 5	4
10	Curtain wall	4.06	0.74 6	10 0	4.04	0.75 2	1 0
11	Swimming pool	4.05	0.92 9	11	4.20	0.89 4	5
12	Sanitary appliances	3.96	1.19 9	12	4.92	0.38 3	1

13	Services equipment	3.85	1.24	13	4.89	0.42	2
			6			2	
14	Disposal installations	3.78	1.29	14	4.83	0.54	3
			8			4	

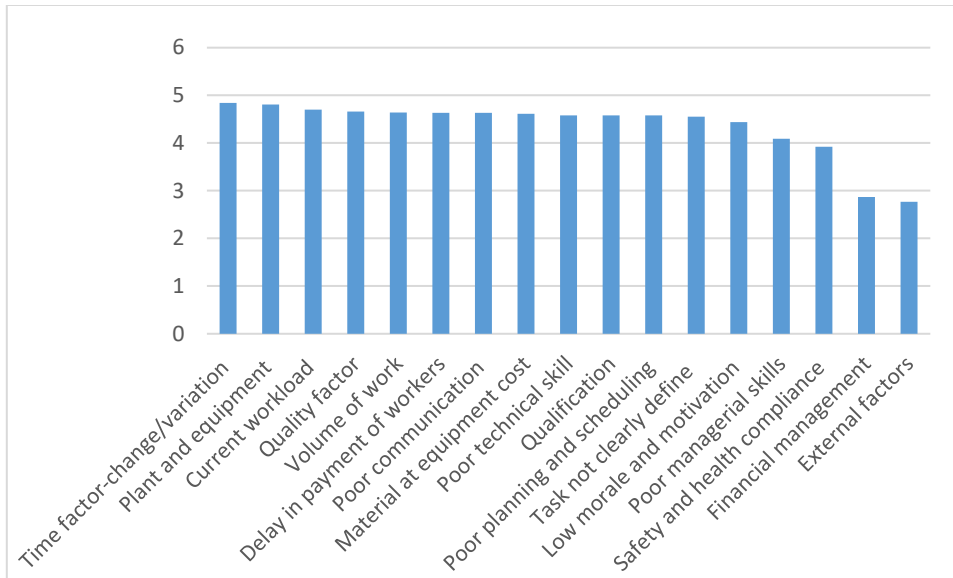


Figure 4.1: Factors affecting the performance of expatriate and indigenous subcontractors

4.4 Factors Affecting the Performance of Expatriate and Indigenous Subcontractors

Table 4.6 and figure 4.1 shows the seventeen factors affecting the subcontractors' (indigenous and expatriate) performance identified from the literature. The factors were ranked based on the mean score from the highest (4.84) to the lowest (2.77), as shown in Table 4.6. Furthermore, the significance level results of the factors are shown in Table 4.7 to determine if the factors are significant towards affecting the performance of the subcontractors. The study adopts a test value of 3.5, as employed in previous construction-related studies (Bello *et al.*, 2023; Olanrewaju *et al.*, 2020). The factors are significant at less than 0.05 ($p < 0.05$).

The data underwent a reliability test using Cronbach's alpha coefficient to assess its suitability and dependability for the study. Following the guidelines proposed by Maree and Pietersen (2016), Cronbach's alpha coefficient values of 0.90 are considered highly reliable,

0.80 moderately reliable and 0.70 less reliable. In Table 4.6, the reliability of the data was presented, revealing adequate reliability of 0.893, thereby meeting the requirements for the study.

Table 4.6: Data reliability test for suitability of subcontracted elements executed by expatriate and indigenous subcontractors.

Cronbach's Alpha	N of Items
0.893	17

All the identified factors shown in Table 4.8 are statistically significant at ($p < 0.000$) towards affecting the performance of subcontractors. Ranked highest is the time factor-change/variation (mean = 4.84; SD = 0.383; Sig. = 0.000), followed by plant and equipment (mean = 4.81; SD = 0.519; Sig. = 0.000), current workload (mean = 4.70; SD = 0.499; Sig. = 0.000), quality factor (mean = 4.66; SD = 0.645; Sig. = 0.000), and volume of work (mean = 4.64; SD = 0.670; Sig. = 0.000). The least ranked factor is external factors (mean = 2.77; SD = 1.539; Sig. = 0.000) followed by financial management (mean = 2.87; SD = 1.673; Sig. = 0.000), safety and health compliance (mean = 3.92; SD = 1.255; Sig. = 0.000), poor managerial skills (mean = 4.09; SD = 1.067; Sig. = 0.000), and low morale and motivation (mean = 4.44; SD = 0.727; Sig. = 0.000).

Table 4.7: Factors affecting the performance of expatriate and indigenous subcontractors.

Factors	Mean	SD	T	Df	Sig.	R
Time factor-change/variation	4.84	0.383	44.023	157	0.000	1
Plant and equipment	4.81	0.519	31.725	157	0.000	2
Current workload	4.70	0.499	30.321	157	0.000	3
Quality factor	4.66	0.645	22.711	157	0.000	4
Volume of work	4.64	0.670	21.379	157	0.000	5
Delay in payment of workers	4.63	0.570	24.854	157	0.000	6
Poor communication	4.63	0.592	23.932	157	0.000	7
Material at equipment cost	4.61	0.763	18.346	157	0.000	8
Poor technical skill	4.58	0.725	18.775	157	0.000	9
Qualification	4.58	0.600	22.527	157	0.000	10
Poor planning and scheduling	4.58	0.743	18.211	157	0.000	11
Task not clearly define	4.55	0.634	20.832	157	0.000	12
Low morale and motivation	4.44	0.727	16.304	157	0.000	13
Poor managerial skills	4.09	1.067	6.934	157	0.000	14
Safety and health compliance	3.92	1.255	4.249	157	0.000	15
Financial management	2.87	1.673	-4.708	157	0.000	16
External factors	2.77	1.539	-5.945	157	0.000	17

The factors affecting subcontractor performance in the construction industry reveals exciting insights. The factors were ranked based on their mean scores, ranging from the highest to the lowest. Examine the top and last factors and explore their implications for subcontractor performance. The time factor-change/variation with mean score 4.84 is the most influential factor among all the factors. This result aligns with the view of (2014) that dynamic nature of construction projects, where changes in project timelines can significantly impact subcontractor performance (Harris and McCaffer, 2014). It emphasizes the need for effective project management and coordination to handle time-related variations efficiently.

The second-ranked factor, plant and equipment, underscores the importance of providing subcontractors with suitable and well-maintained machinery and tools. This factor's high ranking highlights the critical role of having access to appropriate resources in achieving

optimal subcontractor performance. Adequate investment in plant and equipment can enhance productivity and efficiency on construction sites (Eshofonie, 2008). Current workload is another significant factor affecting subcontractor performance, ranking third in importance. Managing workload effectively is essential to prevent subcontractors from being overwhelmed or stretched beyond their capabilities. Proper workload distribution and resource allocation ensure subcontractors can deliver their tasks efficiently and maintain high-performance levels.

The quality factor, ranking fourth, emphasizes the importance of delivering work that meets project specifications and adheres to high-quality standards. This factor highlights the significance of quality control measures in subcontractor performance. Focusing on quality assurance can improve client satisfaction and long-term success in the construction industry (Ugochukwu and Onyekwena, 2014). The fifth-ranked factor, the volume of work, suggests that managing the quantity of work assigned to subcontractors is crucial for their performance. Striking the right balance between workload and available resources is necessary to prevent subcontractors from becoming overwhelmed or underutilized. The optimal volume of work allocation can contribute to subcontractor efficiency and effectiveness.

Turning to the last five factors, external factors, financial management, safety and health compliance, poor managerial skills, and low morale and motivation are identified as having a relatively lower impact on subcontractor performance. However, even though these factors rank lower, they still significantly influence subcontractor performance and project success. External factors, such as economic conditions and regulatory environments, can influence subcontractor performance indirectly. Although ranking lowest, they should not be

overlooked, as they can impact project timelines, availability of resources, and overall project conditions. Addressing financial management challenges ensures subcontractors are paid promptly and can manage their financial obligations. By maintaining healthy cash flow and transparent financial practices, project stakeholders can enhance subcontractor performance which is in line with the opinion of Odediran *et al.*, (2012),

Safety and health compliance are crucial for creating a conducive work environment. Neglecting safety protocols can lead to accidents, injuries, and project delays. Subcontractor performance is closely tied to a safe and healthy workplace, and prioritizing safety measures is essential. Improving managerial skills can positively impact subcontractor performance. Effective leadership, communication, and coordination are vital aspects that influence subcontractor productivity. Enhancing managerial capabilities can foster better collaboration and ensure smooth project execution. Lastly, low morale and motivation can adversely affect subcontractor performance. Creating a positive work culture, recognizing and rewarding subcontractors' efforts, and providing opportunities for professional growth can boost morale and motivation levels, leading to improved performance.

Understanding the factors influencing subcontractor performance is crucial for optimizing their contribution to construction projects. Project stakeholders can enhance subcontractor performance and project outcomes by addressing the top-ranked factors, such as time management, resource allocation, workload, quality assurance, and volume of work. Simultaneously, the lower-ranked factors, including external factors, financial management, safety compliance, managerial skills, and morale/motivation, should not be neglected, as they can still impact subcontractor performance indirectly. A holistic approach and

addressing these factors collectively can improve subcontractor performance, increase project efficiency and effectiveness, and, ultimately, project success.

To effectively manage the time factor-change/variation, project managers should implement robust change management processes and communication channels. This ensures that subcontractors are promptly informed of any modifications or variations to project timelines, allowing them to adjust their schedules and resources accordingly. Adequate planning and coordination are vital to minimizing disruptions and maintaining subcontractor performance despite changes.

Investing in modern and well-maintained plants and equipment is crucial for subcontractor performance. Project stakeholders should prioritize providing subcontractors the necessary tools and machinery to carry out their tasks efficiently. Regular maintenance and upgrades can prevent downtime and delays, enabling subcontractors to meet project requirements and deliver high-quality work. Proper workload management is essential to prevent subcontractors from becoming overwhelmed or underutilized. Project managers should carefully assess subcontractor capabilities and allocate work accordingly. This involves monitoring progress, ensuring a balanced distribution of tasks, and optimizing resource utilization. Effective workload management helps subcontractors maintain productivity and achieve optimal performance levels.

The quality factor highlights the significance of implementing stringent quality control measures. This includes conducting regular inspections, implementing quality assurance protocols, and providing subcontractors with precise project specifications. Emphasizing quality throughout construction, improve client satisfaction, and overall project success. Managing the volume of work assigned to subcontractors is crucial to ensure optimal

performance. Overloading subcontractors can lead to compromised quality and increased errors, while underutilization can result in inefficiency and wasted resources. Striking a balance by aligning the volume of work with subcontractor capabilities and resources contributes to enhanced performance and project outcomes.

While the factors ranked lower, such as external factors, financial management, safety and health compliance, poor managerial skills, and low morale and motivation, may have a more negligible impact on subcontractor performance, they should not be disregarded. Project stakeholders must address these factors proactively to create a supportive and conducive working environment. Considering external factors like economic conditions and regulatory frameworks allows project managers to anticipate potential challenges and adjust project plans accordingly. Effective financial management practices, including timely payment of subcontractors and transparent financial processes, foster trust and collaboration. Prioritizing safety and health compliance ensure a secure working environment, promoting productivity and minimizing disruptions. Enhancing managerial skills through training and development programs empowers project managers to lead subcontractors and coordinate project activities effectively. Nurturing a positive work culture, recognizing subcontractors' contributions, and providing opportunities for professional growth can significantly impact morale and motivation levels. Engaged and motivated subcontractors are likelier to perform at their best and contribute to project success.

In conclusion, understanding and addressing the factors affecting subcontractor performance are vital for successful construction projects. By prioritizing the top-ranked factors and addressing the lower-ranked ones, project stakeholders can create an environment conducive to subcontractor excellence. Effective time management, resource allocation, workload

distribution, quality assurance, and volume of work management are crucial to optimizing subcontractor performance. Simultaneously, attention should be given to external factors, financial management, safety compliance, managerial skills, and subcontractor morale and motivation. By taking a comprehensive and holistic approach to subcontractor performance, project stakeholders can maximize their contributions, enhance project efficiency, and achieve successful project outcomes.

These findings suggest that regardless of whether the subcontractors are indigenous or expatriate or the profession of the respondents, their opinions on the factors affecting subcontractor performance in the Nigerian construction industry are generally similar. This indicates a level of consensus among the respondents regarding the identified factors.

It is important to note that while the opinions do not significantly differ based on the nature of subcontracting or profession, the factors are significant. The factors identified in the study still hold importance and impact subcontractor performance in the construction industry. The lack of statistical significance in opinions across these groups may be attributed to other factors, such as shared experiences, common challenges faced in the industry, or the similarity of perspectives among the respondents.

These results suggest that efforts to improve subcontractor performance should focus on addressing the identified factors, irrespective of whether the subcontractors are indigenous or expatriate or the profession of the respondents. It is crucial to implement measures that target the common challenges and concerns shared by subcontractors in order to enhance their performance and overall project outcomes.

Future studies could further investigate the factors contributing to the consensus among subcontractors and explore other variables that may influence subcontractor opinions in the construction industry. By gaining a deeper understanding of these dynamics, project stakeholders can develop tailored strategies and interventions to improve subcontractor performance and promote collaborative relationships within the industry.

4.5 Strategies for the Improvement of the Performance of Subcontractor

Considering the first five factors in the result, it is evident that the respondents place high value on clear communication and well-defined expectations in the subcontractor agreement. These is in line with the study done by Tripathi and Jha (2018). The "Clearly define the scope of work and expected outcomes in the subcontractor agreement" ranked highest with a mean score of 4.87, indicating its significance in ensuring subcontractor performance. This is followed closely by "Conduct regular progress meetings with the subcontractor to monitor performance and identify issues" (mean = 4.80) and "Provide training and support to the subcontractor as needed" (mean = 4.75). These findings highlight the importance of effective communication, monitoring, and support in enhancing subcontractor performance. The following two factors in the top five are "Conduct regular inspections and quality control checks of the subcontractor's work" (mean = 4.68) and "Build a positive relationship with the subcontractor based on trust and respect" (mean = 4.60). These factors emphasize the need for quality control and a positive working environment to facilitate better subcontractor performance.

On the other hand, the last five factors in the result provide insights into areas that may require more attention in subcontractor management. These factors include "Establish clear and open lines of communication with the subcontractor throughout the project" (mean =

4.08), "Encourage subcontractor involvement in the planning and decision-making process" (mean = 3.99), and "Set achievable goals and timelines for the subcontractor's work" (mean = 3.92). These factors received relatively lower mean scores, indicating that respondents perceived them as less influential in subcontractor performance. However, it is essential to note that they are still considered significant factors, despite being ranked lower.

Furthermore, "Provide incentives for good performance and penalties for poor performance" (mean = 3.76) stands out as the lowest-ranked factor in the list. This suggests that respondents may not perceive using incentives and penalties as highly effective in driving subcontractor performance. Alternative approaches or strategies may be needed to motivate subcontractors and improve their performance. The strategies developed in the study can collectively significantly impact subcontracting performance and improvement. These strategies encompass various aspects of subcontractor management and address critical factors influencing effectiveness. By implementing these strategies, project managers can create a favourable environment for subcontractors and enhance their overall performance.

Timely payment to subcontractors (Strategy 8) is essential for maintaining financial stability and motivation which agrees with Bagaya and Song (2016) view. When subcontractors receive payment on time, it positively affects their cash flow and allows them to allocate resources efficiently. Additionally, providing incentives for good performance and penalties for poor performance (Strategy 19) can motivate subcontractors to strive for excellence and meet project objectives. Establishing transparent processes for dispute resolution (Strategy 14) and providing feedback on subcontractor performance (Strategy 15) enables effective conflict management and continuous improvement. By promptly addressing issues and

providing constructive feedback, project managers can foster a culture of accountability and encourage subcontractors to enhance their performance.

Overall, the results demonstrate that effective communication, clear expectations, monitoring, and support are highly valued by respondents and are seen as crucial in subcontractor management. Building positive relationships based on trust and respect is also considered essential. However, further attention and improvement could benefit areas such as involving subcontractors in decision-making processes, setting achievable goals, and providing incentives. These findings provide valuable insights for construction project stakeholders and managers, highlighting the areas that should be prioritized in subcontractor management strategies. By addressing the respondents' needs, project teams can create a good working environment, promote better collaboration, and ultimately enhance subcontractor performance in the Nigerian construction industry.

In conclusion, these strategies collectively contribute to the performance and improvement of subcontracting by fostering effective communication, promoting collaboration, ensuring quality control, maintaining financial stability, and incentivizing subcontractor excellence. Implementing these strategies creates a good environment for subcontractors to thrive, resulting in successful project outcomes and client satisfaction.

Table 4.8: Subcontractor performance improvement strategies

Strategies	Mean	SD	Test Value = 3.5			R
			T	Df	Sig.	
Clearly define the scope of work and expected outcomes in the subcontractor agreement	4.87	0.352	49.025	157	0.000	1
Conduct regular progress meetings with the subcontractor to monitor performance and identify issues	4.80	0.434	37.612	157	0.000	2
Provide training and support to the subcontractor as needed	4.75	0.549	28.676	157	0.000	3
Conduct regular inspections and quality control checks of the subcontractor's work	4.68	0.518	28.703	157	0.000	4
Build a positive relationship with the subcontractor based on trust and respect	4.60	0.586	23.630	157	0.000	5
Foster a culture of collaboration and teamwork among all project stakeholders	4.59	0.598	23.029	157	0.000	6
Ensure that the subcontractor has the necessary resources, tools, and equipment to complete the work	4.57	0.760	17.686	157	0.000	7
Provide timely payment to the subcontractor	4.56	0.718	18.623	157	0.000	8
Communicate project changes and updates to the subcontractor in a timely and transparent manner	4.55	0.673	19.625	157	0.000	9
Address any issues or concerns with the subcontractor promptly and professionally	4.54	0.719	18.134	157	0.000	10
Establish a system for tracking subcontractor performance and progress	4.51	0.595	21.276	157	0.000	11
Consider subcontractor performance when awarding future contracts	4.49	0.646	19.338	157	0.000	12
Celebrate successes and recognize the subcontractor's contributions to the project	4.43	0.785	14.899	157	0.000	13
Establish a clear process for resolving disputes with the subcontractor	4.36	0.776	13.950	157	0.000	14
Provide feedback to the subcontractor on their performance	4.33	0.863	12.078	157	0.000	15
Establish clear and open lines of communication with the subcontractor throughout the project	4.08	1.092	6.632	157	0.000	16
Encourage subcontractor involvement in the planning and decision-making process	3.99	1.109	5.597	157	0.000	17
Set achievable goals and timelines for the subcontractor's work	3.92	1.229	4.338	157	0.000	18
Provide incentives for good performance and penalties for poor performance	3.76	1.366	2.388	157	0.018	19
Provide detailed plans and specifications to the subcontractor	2.99	1.708	-3.773	157	0.000	20

Table 4.8a: Subcontractor performance improvement strategies

Strategies	Mean	SD	Test Value = 3.5	R	Strategies	Mean	SD
Ensure that the subcontractor has the necessary resources, tools, and equipment to complete the work	0.568	1	0.451		6.070	9	0.733
Provide training and support to the subcontractor as needed	0.249	1	0.618		1.054	9	0.999
Encourage subcontractor involvement in the planning and decision-making process	0.363	1	0.547		2.459	9	0.982
Provide incentives for good performance and penalties for poor performance	0.738	1	0.390		7.045	9	0.632
Conduct regular inspections and quality control checks of the subcontractor's work	0.048	1	0.826		10.342	9	0.324
Establish a clear process for resolving disputes with the subcontractor	1.229	1	0.268		16.168	9	0.063
Build a positive relationship with the subcontractor based on trust and respect	0.361	1	0.548		11.678	9	0.232
Communicate project changes and updates to the subcontractor in a timely and transparent manner	0.234	1	0.628		7.443	9	0.591
Provide feedback to the subcontractor on their performance	0.407	1	0.523		12.096	9	0.208
Address any issues or concerns with the subcontractor promptly and professionally	0.211	1	0.646		12.442	9	0.190
Establish a system for tracking subcontractor performance and progress	0.003	1	0.960		8.596	9	0.475
Provide timely payment to the subcontractor	0.882	1	0.348		11.259	9	0.258
Foster a culture of collaboration and teamwork among all project stakeholders	0.181	1	0.671		11.074	9	0.271
Consider subcontractor performance when awarding future contracts	1.098	1	0.295		10.286	9	0.328
Celebrate successes and recognize the subcontractor's contributions.	0.613	1	0.434		8.690	9	0.466

Table 4.9 KMO and Bartlett's Test for Subcontractor's performance improvement strategies.

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.806
Bartlett's Test of Sphericity	Approx. Chi-Square	1546.952
	Df	190
	Sig.	0.000

4.5.1 Rotated component matrix

Principal Component Analysis (PCA) is a statistical technique used to reduce the dimensionality of a dataset while preserving the most critical information. The result of PCA is a set of uncorrelated variables called principal components. The rotated component matrix in PCA refers to a transformed representation of the original variables after applying a rotation technique (Field, 2013). The rotation aims to improve the principal components' interpretability by creating a more straightforward and meaningful structure. The rotated component matrix displays the loadings of the original variables on the rotated components. Loadings represent the correlation between the variables and the components and indicate how strongly a variable is associated with a particular component. By examining the rotated component matrix, researchers can identify which variables contribute most to each component and interpret the underlying structure of the data more efficiently. The rotated component matrix in PCA facilitates a more meaningful interpretation of the principal components by creating a more transparent relationship between the original variables and the derived components.

The twenty identified strategies were rotated into four components: Component 1: Communication and Collaboration, Component 2: Project Planning and Resource Management, Component 3: Issue Resolution and Performance Monitoring, and Component 4: Performance Incentives and Feedback.

Table 4.10 Rotated Component Matrix for subcontractors' improvement strategies.

Strategies	1	2	3	4
Clearly define the scope of work and expected outcomes in the subcontractor agreement				0.457
Establish clear and open lines of communication with the subcontractor throughout the project		0.775		
Set achievable goals and timelines for the subcontractor's work		0.839		
Provide detailed plans and specifications to the subcontractor		0.796		
Conduct regular progress meetings with the subcontractor to monitor performance and identify issues				0.482
Ensure that the subcontractor has the necessary resources, tools, and equipment to complete the work				0.709
Provide training and support to the subcontractor as needed				0.663
Encourage subcontractor involvement in the planning and decision-making process			0.903	
Provide incentives for good performance and penalties for poor performance			0.913	
Conduct regular inspections and quality control checks of the subcontractor's work	0.438			
Establish a clear process for resolving disputes with the subcontractor	0.710			
Build a positive relationship with the subcontractor based on trust and respect	0.642			
Communicate project changes and updates to the subcontractor in a timely and transparent manner	0.761			
Provide feedback to the subcontractor on their performance	0.808			
Address any issues or concerns with the subcontractor promptly and professionally	0.694			
Establish a system for tracking subcontractor performance and progress	0.739			
Provide timely payment to the subcontractor	0.613			
Foster a culture of collaboration and teamwork among all project stakeholders	0.582			
Consider subcontractor performance when awarding future contracts	0.747			
Celebrate successes and recognize the subcontractor's contributions to the project	0.678			

Component 1: Communication and Collaboration

Effective communication and collaboration are vital aspects of successful subcontractor management. This component highlights strategies that facilitate clear and open communication lines, foster collaboration, and build positive relationships with subcontractors. The strategy of clearly defining the scope of work and expected outcomes in the subcontractor agreement (loading: 0.457) sets the foundation for effective communication. By explicitly outlining the project's goals and deliverables, both parties gain a shared understanding of expectations. Establishing clear and open lines of communication with the subcontractor throughout the project (loading: 0.775) is another crucial strategy. Regular and transparent communication ensures that both parties are well-informed, can promptly address any issues, and make necessary adjustments.

Encouraging subcontractor involvement in the planning and decision-making (loading: 0.903) promotes collaboration and harnesses the subcontractor's expertise. Project managers can benefit from their valuable input by involving subcontractors in critical decisions, leading to more effective project outcomes. Building a positive relationship with the subcontractor based on trust and respect (loading: 0.642) fosters a conducive environment for collaboration. When subcontractors feel valued and respected, they are more likely to be motivated, actively engage in project discussions, and work towards shared goals. Communicating project changes and updates to the subcontractor promptly and transparently (loading: 0.761) ensures that subcontractors are kept informed of any modifications or developments. This strategy prevents misunderstandings, minimizes disruptions, and allows for proactive adjustments to the subcontractor's work. Addressing any issues or concerns with the subcontractor promptly and professionally (loading: 0.694) is essential for

maintaining a positive working relationship. Timely resolution of conflicts or concerns demonstrates responsiveness and commitment to resolving problems, fostering trust and cooperation.

Component 2: Project Planning and Resource Management

This component focuses on strategies related to effective project planning and resource management. These strategies ensure the subcontractor's work is well-coordinated, adequately supported, and aligned with project objectives. Setting achievable goals and timelines for the subcontractor's work (loading: 0.839) is a critical strategy that provides clarity and direction. Clear goals and realistic timelines help subcontractors understand project expectations and work towards successful outcomes within defined timeframes.

Providing detailed plans and specifications to the subcontractor (loading: 0.796) facilitates a common understanding of project requirements. By offering comprehensive documentation, project managers enable subcontractors to deliver work that aligns with project specifications, minimizing potential errors or misunderstandings. Ensuring the subcontractor has the necessary resources, tools, and equipment to complete the work (loading: 0.709) is crucial for successful project execution. Adequate resource provision enhances subcontractor productivity, minimizes delays, and contributes to overall project efficiency. Regular inspections and quality control checks of the subcontractor's work (loading: 0.438) promote quality assurance. Project managers can identify potential issues early by monitoring the subcontractor's performance, ensuring that work meets the required standards and specifications.

Component 3: Issue resolution and performance monitoring

This component addresses issues resolution and performance monitoring strategies, which are essential for effective subcontractor management. Establishing a transparent process for resolving disputes with the subcontractor (loading: 0.710) is a proactive strategy that minimizes conflicts and ensures fair resolution in case disagreements arise. Having a predefined process promotes transparency, reduces misunderstandings, and helps maintain positive working relationships. Tracking subcontractor performance and progress (loading: 0.739) is a strategy that enables project managers to monitor the subcontractor's work throughout the project lifecycle. Regular monitoring allows for the early identification of performance issues, enabling prompt intervention and corrective action. It also provides valuable data for evaluating subcontractor performance and making informed decisions regarding future selection.

Component 4: performance incentives and feedback

This component focuses on strategies to incentivise good performance, provide feedback, and consider subcontractor performance for future contracts. Providing incentives for good performance and penalties for poor performance (loading: 0.913) is a strategy that motivates subcontractors to meet or exceed project expectations. Incentives, such as performance bonuses or recognition, encourage subcontractors to deliver high-quality work and strive for excellence. Conversely, penalties for poor performance serve as a deterrent and reinforce the importance of meeting project requirements. Providing feedback to the subcontractor on their performance (loading: 0.808) is a valuable strategy for continuous improvement. Constructive feedback allows subcontractors to understand areas of strength and areas that require improvement, enabling them to enhance their performance and contribute more effectively to the project.

Considering subcontractor performance when awarding future contracts (loading: 0.747) is a strategic approach that recognizes and rewards subcontractors with a track record of successful project outcomes. By considering past performance, project managers can make informed decisions when selecting subcontractors for future projects, increasing the likelihood of achieving project goals and maintaining positive subcontractor relationships. Celebrating successes and recognizing the subcontractor's contributions to the project (loading: 0.678) is essential for fostering a positive project environment. By acknowledging subcontractor achievements, project managers promote a sense of pride and motivation, which can lead to increased dedication and commitment to project success.

In summary, the four components identified in the rotated component matrix provide valuable insights into the strategies associated with effective subcontractor management. Component 1 highlights the significance of communication and collaboration, while Component 2 emphasizes project planning and resource management. Component 3 addresses issue resolution and performance monitoring, and Component 4 focuses on performance incentives and feedback. By implementing these strategies, project managers can foster strong subcontractor relationships, ensure effective project execution, and achieve successful project outcomes.

4.7 Summary of Findings

From the findings the following building elements are mostly subcontracted to expatriate subcontractors: sanitary appliances with mean score 4.46, external works with mean score 4.25, swimming pool with mean score 4.18, disposal installations having mean score 4.18, services equipment, and frames and upper floor with mean score 4.12. while roofs having mean score 4.56, substructure with mean score 4.38, electrical installation mean score 4.34,

mechanical installation with mean score 4.29, stairs having mean score 4.11, finishes mean score 4.11, curtain wall with mean score 4.07 are the building elements mostly subcontracted to indigenous subcontractors. The findings also reveal that the expatriate subcontractors are more suitable for executing building elements like: sanitary appliances, services equipment, disposal installations, external works, windows and doors and swimming pool, while the indigenous subcontractors were indicated to be more suitable in substructure, electrical installation, roofs, mechanical installation, stairs, finishes, frames and upper floors. The findings revealed that seventeen key factors influencing subcontractor performance, ranges from time factor-change/variation and plant and equipment to external factors and financial management. The results demonstrated that all identified factors were statistically significant in affecting subcontractor performance ($p < 0.05$).

The study proposed strategies to enhance the performance of subcontractors involved in building projects. These strategies encompassed various aspects, including clearly defining work scope, regular progress meetings, providing training and support, conducting inspections and quality control checks, fostering collaboration and teamwork, timely communication, feedback mechanisms, and addressing issues promptly and professionally.

CHAPTER FIVE

5.0 CONCLUSION AND RECOMMENDATIONS

5.1 Conclusions

This study aimed to explore the subcontractor's suitability in execution of elements of building works in the construction industry, specifically focusing on Nigeria's Federal Capital Territory (FCT). By achieving the stated objectives, this research has shed light on several significant aspects related to subcontracting, including the elements of construction works subcontracted to expatriate and indigenous subcontractors, the evaluation of subcontractors, suitability in executing building elements, factors influencing the performance of subcontractors, and strategies for improving subcontractor performance in the construction industry.

The findings of this study provide valuable insights into the subcontracting landscape in the construction industry in the. The analysis revealed that various construction works are subcontracted to expatriate and indigenous companies, indicating the prevalence and importance of subcontracting in the region. This information can be a reference for construction professionals and stakeholders involved in project planning and decision-making processes.

The e--valuation of subcontractor's suitability in executing building elements demonstrated several building elements which can best be handled by expatriate or indigenous subcontractor. Several vital factors significantly influence the performance of subcontractors. These identified factors included time factors, plant and equipment, current workload, quality factors, and volume of work, among others. These findings highlight the

multifaceted nature of subcontractor performance and emphasize the need for careful consideration and management of these factors to ensure successful project outcomes.

Based on the research findings, a set of strategies was proposed to enhance the performance of subcontractors in the construction industry. These strategies encompassed various aspects such as clearly defining the scope of work and expected outcomes, conducting regular progress meetings to monitor performance, providing training and support as needed, conducting inspections and quality control checks, fostering collaboration and teamwork, ensuring the availability of necessary resources and equipment, maintaining timely communication, addressing issues promptly and professionally, establishing a system for tracking performance and progress, considering subcontractor performance in future contracts, celebrating successes and recognizing contributions, and establishing transparent processes for dispute resolution. Implementing these strategies can improve subcontractor performance, collaboration, and project delivery.

This study has provided valuable insights into subcontracting practices, performance evaluation, factors influencing performance, and strategies for improving subcontractor performance in the construction industry. The findings contribute to the existing body of knowledge in the field, offering practical recommendations for construction professionals and stakeholders to enhance subcontractor performance and achieve successful project outcomes. Industry practitioners need to consider and implement the identified strategies, considering each project's specific context and requirements. Further research in this area can explore additional factors influencing subcontractor performance and investigate the long-term impact of implementing the proposed strategies. The construction industry can

foster collaboration, efficiency, and quality in building projects by continually improving subcontracting practices, leading to sustainable development and growth.

5.2 Recommendations

Based on the findings of this study, several recommendations were made to improve subcontracting practices and enhance subcontractor performance and suitability in the construction industry:

- i. **Clearly Define Scope and Expectations:** Defining the scope of work and expected outcomes in subcontractor agreements is crucial. This will help establish a shared understanding and minimize potential misunderstandings or conflicts.
- ii. **Training and Support:** Provide necessary training and support to subcontractors as needed. This can help enhance their skills and capabilities, leading to improved performance and productivity.
- iii. **Quality Control and Inspections:** Implement regular inspections and quality control checks of subcontractors' work. This will ensure project specifications and standards compliance, leading to higher-quality deliverables.
- iv. **Collaboration and Teamwork:** Foster a culture of collaboration and teamwork among all project stakeholders, including subcontractors. Encourage active involvement in the planning and decision-making processes to promote shared ownership and cooperation.
- v. **Issue Resolution:** Promptly and professionally address any issues or concerns subcontractors raise. Effective issue resolution can help maintain a positive working relationship and prevent potential disputes or conflicts.
- vi. **Performance Tracking and Evaluation:** Establish a system for tracking subcontractor performance and progress throughout the project. Regularly evaluate their performance

against predefined metrics to identify areas for improvement and provide constructive feedback.

Based on the study findings, these recommendations aim to improve subcontracting practices, enhance subcontractor performance, and foster successful project outcomes. Implementing these recommendations requires collaboration and commitment from all project stakeholders, including contractors, clients, and subcontractors. By adopting these practices, the construction industry can create a good environment for subcontractors to thrive, resulting in improved project performance, increased client satisfaction, and overall industry growth.

5.3 Contribution to Knowledge

The present study significantly contributes to the knowledge and understanding of subcontracting in the construction industry, specifically in the Nigerian (Abuja) construction industry. The contributions are outlined below:

Identification of Factors Affecting Subcontractor Performance: The study identifies and ranks seventeen factors that significantly impact the performance of both expatriate and indigenous subcontractors. By providing a comprehensive understanding of these factors, the study contributes to the knowledge of subcontractor performance in the Nigerian construction industry. This knowledge can guide project managers and stakeholders in effectively managing subcontractors and addressing the key factors influencing their performance.

- i. **Evaluation of Subcontractors suitability in executing building elements:** The study evaluates the suitability of subcontractors in executing building elements. This

evaluation provides valuable knowledge of choosing the right subcontractor that has the skill and expertise in handling different building elements. The findings can help industry practitioners identify areas of improvement and develop strategies to enhance subcontractor performance.

- ii. **Comparative Analysis of Subcontracting Nature and Profession:** The study compares respondents' opinions based on the nature of subcontracting (indigenous and expatriate) and their profession. This analysis contributes to understanding potential differences in perception and opinion among different stakeholder groups. By highlighting these differences, the study fosters effective communication and collaboration among stakeholders involved in subcontracting processes.
- iii. **Validation of Significance Level:** The study adopts a significance level of less than 0.05 ($p < 0.05$) to determine the statistical significance of the identified factors affecting subcontractor performance. This validation contributes to the study's methodological rigour and reinforces the findings' robustness. Researchers and practitioners can rely on the established significance level to assess the impact of various factors on subcontractor performance in future studies and industry practices.
- iv. **Development of Improvement Strategies:** A set of practical strategies for improving subcontractor performance in building projects is proposed based on the study findings. These strategies are derived from the identified factors. They are specifically tailored to address subcontractors' challenges in the Nigerian construction industry. The developed strategies provide valuable guidance to project managers and stakeholders seeking to enhance subcontractor performance and achieve successful project outcomes.

By providing empirical evidence, insights, and practical recommendations, this study contributes to bridging the gap in knowledge regarding subcontracting practices and subcontractor performance in the Nigerian (Abuja) construction industry. The study's findings can serve as a foundation for further research. They can inform industry practitioners, policymakers, and project stakeholders in developing effective subcontracting strategies, improving project management practices, and promoting sustainable growth in the construction industry.

5.4 Future Studies Direction

The current study has shed light on several vital aspects of subcontracting in the Nigerian (Abuja) construction industry. However, there are still avenues for future research that can build upon these findings and contribute to a more comprehensive understanding of subcontracting practices. The following directions are recommended for future studies:

- i. **Comparative Analysis with Other Regions:** While this study focuses on the Nigerian (Abuja) construction industry, future studies can expand the scope by conducting comparative analyses with other regions or countries. Such comparisons would enable researchers to identify similarities and differences in subcontracting practices, factors affecting performance, and strategies for improvement. This comparative approach would provide a broader perspective and facilitate the transferability of findings across different contexts.
- ii. **Technology and Innovation in Subcontracting:** The construction industry is witnessing technological advancements and adopting innovative practices. Future studies can explore the role of technology, such as Building Information Modelling (BIM), in enhancing subcontractor performance and streamlining subcontracting processes. Additionally, investigating the impact of emerging trends, such as off-site construction and modularization,

on subcontracting dynamics would provide valuable insights into the future of subcontracting practices.

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APPENDICES

APPENDIX A LETTER OF INTRODUCTION



Department of Building,
School of Environmental
Technology,
P.M.B, 65,
Minna, Niger State.
10th December, 2022.

Dear Respondent,

Comparative study of the Suitability of indigenous and expatriate subcontractors in the construction industry in Abuja

My name is MOMODU Dauda David, a post graduate student of the Department of Building, School of Environmental Technology, Federal University of Technology, Minna, Niger State. I am undergoing an M.Sc. Construction Management Programme and I am carrying out a study “**Comparative study of the suitability of indigenous and expatriate subcontractors in the construction industry in Abuja** “Please answer the following questions base on your practical experience with project subcontractors in construction projects.

All information supplied will be treated with confidentiality and used for academic purposes only. If you have any questions or would like further information, please do not hesitate to contact me or my supervisor on the contacts details provided below.

Thanks for your participation.

MOMODU Dauda David
Researcher
Tel: 07039113557
E-mail: david4christ2018@gmail.com

Dr.C.UAyegba
Project Supervisor
Tel: 08034083586
Email: calistusayegba@futminna.edu.ng

SECTION A

Instruction: please fill and tick (✓) as appropriate in the following questions;

Characteristics of Respondent

- a. Age
 - (i) 20-30 (ii) 31-40 (iii) 41-50 (iv) above 50
- b. Sex
 - (i) Male (ii) Female
- c. Academic qualification
 - (i) OND (ii) HND/B.Sc. (iii) Master's degree (iv) Doctorate
- d. Years of experience of respondent in construction
 - (i) 1-5 (ii) 6-10 (iii) 11-15 (iv) 16-20 (v) Above 20
- e. Professional qualification
 - (i) QSRBON (ii) ARCON (iii) COREN (iv) CORBON (v) ESVARBON
- f. Specialization/Profession
 - (i) Architecture (ii) Electrical Engineering (iii) Mechanical Engineering
 - (iv) Quantity Surveying (v) Structural Engineering
 - (vi) Builder (vii) Other (please specify)

Characteristics of Organization

- a) Type of sub-contractor
 - (i) Indigenous sub-contractor (ii) Expatriate sub-contractor
- (b) Numbers of employees of the sub-contractor
 - (i) 1-50 (ii) 51-100 (iii) 101-150 (iv) Above 150
- (c) Business ownership type
 - (i) Sole proprietor (ii) Partnership (iii) Private limited liability
 - (iv) Public limited liability
- (d) Project client
 - (i) Private (ii) Public

SECTION B

Elements of construction works sub-contracted to expatriate and indigenous construction firm.

Using the following ranks, 1=Never, 2=Rarely, 3=Occasionally, 4=A moderately Amount, 5=A great deal. Tick the rank which indicates the level of use of expatriated and indigenous sub-contractors for each element of work in building project.

S/N	Element of Building	Expatriate Subcontractor					Indigenous Subcontractor				
		1	2	3	4	5	1	2	3	4	5
1	Substructure										
2	Frames and upper floor										
3	Roofs										
4	Stairs										
5	Finishes										
6	Windows and doors										
7	Sanitary appliances										
8	Electrical installation										
9	Mechanical installation										
10	External works										
11	Curtain wall										
12	Swimming pool										
13	Services equipment										
14	Disposal installations										

SECTION C

EVALUATE THE SUITABILITY OF EXPATRIATE OR
INDIGENOUS SUBCONTRACTORS FOR SELECTED BUILDING
ELEMENTS

Indicate the level of suitability of indigenous or expatriate subcontractors in executing the following building element, using the scale: 5= Very high, 4= High, 3= Moderate, 2= Low, 1= Very low.

S/N	Element of Building	Expatriate Subcontractor					Indigenous Subcontractor				
		1	2	3	4	5	1	2	3	4	5
1	Substructure										
2	Frames and upper floor										
3	Roofs										
4	Stairs										
5	Finishes										
6	Windows and doors										
7	Sanitary appliances										
8	Electrical installation										
9	Mechanical installation										
10	External works										

11	Curtain wall										
12	Swimming pool										
13	Services equipment										
14	Disposal installations										

SECTION D

FACTORS AFFECTING THE PERFORMANCE OF EXPATRIATE AND INDIGENOUS SUBCONTRACTORS.

Rank the following factors affecting the performance of subcontractors in Building construction industry. 1=Strongly disagree, 2= disagree, 3=Neither agree nor disagree, 4=Agree, 5=Strongly agree.

S/N	FACTORS	5	4	3	2	1
1	Poor managerial skills					
2	Financial management					
3	Time factor-change/variation					
	Material at equipment cost					
5	Quality factor					
6	Delay in payment of workers					
7	Low morale and motivation					
8	Poor communication					
9	Qualification					
10	Current workload					
11	Plant and equipment					
12	Task not clearly define					
13	Poor technical skill					

14	Poor planning and scheduling					
15	Safety and health compliance					
16	External factors					
17	Volume of work					

SECTION E

STRATEGIES FOR IMPROVING THE PERFORMANCE OF SUBCONTRACTING.

Rank the following strategies for improving the performance of subcontractors in Building construction industry. 1=Strongly disagree, 2= Disagree, 3= Neither agree nor disagree, 4=Agree, 5= Strongly agree.

S/N	FACTORS	5	4	3	2	1
1	Clearly define the scope of work and expected outcomes in the subcontractor agreement					
2	Establish clear and open lines of communication with the subcontractor throughout the project					
3	Set achievable goals and timelines for the subcontractor's work					
4	Provide detailed plans and specifications to the subcontractor					
5	Conduct regular progress meetings with the subcontractor to monitor performance and identify issues					
6	Ensure that the subcontractor has the necessary resources, tools, and equipment to complete the work					
7	Provide training and support to the subcontractor as needed					
8	Encourage subcontractor involvement in the planning and decision-making process					

9	Provide incentives for good performance and penalties for poor performance					
10	Conduct regular inspections and quality control checks of the subcontractor's work					
11	Establish a clear process for resolving disputes with the subcontractor					
12	Build a positive relationship with the subcontractor based on trust and respect					
13	Communicate project changes and updates to the subcontractor in a timely and transparent manner					
14	Provide feedback to the subcontractor on their performance					
15	Address any issues or concerns with the subcontractor promptly and professionally					
16	Establish a system for tracking subcontractor performance and progress					
17	Provide timely payment to the subcontractor					
18	Foster a culture of collaboration and teamwork among all project stakeholders					
19	Consider subcontractor performance when awarding future contracts					

20	Celebrate successes and recognize the subcontractor's contributions to the project					
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