

Assessing the Characteristics of Nigerian Construction Industry in Infrastructure Development

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Abstract - Nigeria is confronted with a high demand for infrastructural facilities that is growing at a faster rate than the available government funding considering the size of Nigerian population. It is evidenced that the Federal Government of Nigeria will require between US\$13 billion to US\$15 billion annually in meeting these infrastructural needs. Various procurement strategies have been employed in facilitating the development of various kind of infrastructure, the most notable procurement approaches utilized for its development and delivery are the conventional model, non-conventional model and the modern approaches.

This research was aimed at assessing the characteristics of Nigerian construction industry in infrastructure development. In order to identify gaps in the body of literature in these areas, relevant literatures were reviewed. The study focuses on the efforts of other researchers in the area of the nature and characteristics of the Nigerian construction industry in terms of construction project delivery, the major procurement strategies employed and contributions of major contractors and the key challenges impacting on the performance of the Nigerian construction industry.

Findings from the study revealed that most infrastructure project development in Nigeria have been impacted negatively by the ineffectiveness and inefficiency of the Nigerian construction industry resulting from: (i) lack of a national infrastructure blueprint; (ii) unclear political direction and support in project development; (iii) weak regulatory and enforcement powers of the Infrastructure Concession Regulatory Commission in Nigeria; (iv) inadequate financial modelling and value for money assessments; (v) technical capacity gaps; (vi) lack of institutional framework for PPP project preparation; (vii) inconsistency in PPP project pipelines; and, (viii) lack of standardisation, hindering replication; etc. These challenges and limitations have therefore culminated to poor performance of Nigerian construction industry in infrastructure development and invariably led to resultant high cost and time overruns experienced on infrastructure development in Nigeria.

Keywords: Nigeria, Construction, Industry, Procurement, Strategies, Performance.

1. BACKGROUND

The structure of Nigerian construction industry is very complex in that it has a wide range of different types of clients and contractors. This consist of public and private clients, main contractors and sub-contractors, one-man firms and international companies, low technology firms and sophisticated specialists, builders and civil engineers and a whole range of construction professionals connected within the industry. The major divisions in the industry are building construction division and civil or heavy engineering construction division. Although the activities in the industry are been carried out on a project basis and could be within an organization or part of a construction programme (Adamu & Kolawole, 2011).

The federal government of Nigeria is often seen to be involved in most complex projects such as road, sea and air port projects and some heavy engineering projects at about 64.9% of the project executed. This is followed by state government which is responsible for about 22.7% of the projects in the industry, although there is still some form of partnering with different groups of investors in the industry. The professionals in the industry are group of individuals often assembled into temporary and functional teams which include; architects, engineers, estate surveyors, project managers, quantity surveyors. This group of professionals are expected to possess the relevant skills, knowledge, tools and techniques to achieve the project goals.

The Nigerian construction industry continues to be the major stimulant in the country's economic growth and development. This strong interrelationship between the economy and the construction industry further strengthens the need to ensure that project planning and management are cost-effective (Mansfield *et al*, 1994). But according to

Mansfield *et al.* (1994), experience has shown that excessive project cost and time overruns have been all too evident involving works undertaken by both the indigenous and foreign contractors. This which were as a result of design errors, unexpected site conditions, increasing project scope, weather conditions and other project changes. It is also evidence that those contractors who are able to perform and deliver their earlier projects successfully fails to deliver similar projects in future and facing time and cost overrun. In view of this, the iron triangle (on time, under budget, according to specifications) which has been widely accepted criteria for project successful and economic delivery during the last couple of years in the Nigerian construction industry according to Toor & Ogunlana (2010) can no longer be the sole determinant of project successful and economic delivery criteria due to changes in demands of users, evolving environmental regulations, shifting functions of projects, the inherent risks and the inhibiting risk factors associated with construction projects.

Throughout the world, construction industry like many other industries is being transformed to meet the new demands of the twenty-first century. As the business environment within which the construction organizations or companies operate continues to change rapidly. In spite of the many changes which have affected construction industries world-wide, the structure of the Nigerian construction industry in terms of its operations has remained largely unaltered. Hence organizations or companies that fail to adapt and respond to the complexity of the new business environment tend to experience survival problems (Lee *et al.* 2001).

Although in the Nigerian construction industry, the few changes experienced are in the area of large increase in the number of indigenous Building contractor and quite a large number of multinational Civil Engineering contractors which has rather not impacted positively in project delivery in the industry. The scarcity of foreign exchange leads to frequent shortages of construction materials, most of which are imported. The foreign exchange also hinders attempts to develop local capacity in the production of conventional materials. Local construction materials remain little used owing to the apathy of stakeholders and end users; and strict building regulations application in the industry.

The construction enterprise in Nigeria faces an unfavourable operating environment. The regulatory framework in the industry is generally inappropriate. Contract documents and procurement arrangements are unsuitable considering the technical background of contractors, nature of work undertaken, traditional ways of dispute resolution, and risk allocation principle. Payments to contractors and consultants on public-sector projects undertaken are very poor and delayed in the industry (Adamu & Kolawole, 2011). Materials supply and delivery are unreliable. Construction companies in Nigeria also face problems in obtaining finance from the mortgage institutions. The industry is highly fragmented with few multinationals that employ hundreds of labour to the majority of the indigenous contractors that employ less than ten employees in the industry.

With the increased competition in the Nigerian construction industry, construction companies procure many construction projects simultaneously. And in which the execution of multiple projects requires high quality project plans and controls. This therefore holds true for multiple Design and Build construction projects where the design also had to be done by the same construction company. Not only is on-time delivery important, it translates directly into whether the contractor will meet the client requirement, quality and provide a return on investment in the projects. Although majority of the Design - Build (D &B) projects in the industry encounter events and or changes that affect the original plan of executing the project thereby resulting to cost and time overruns. Owing to these challenges and limitations, the construction industry in Nigeria operates with low productivity and relatively high overall cost.

In view of this according to Jimoh (2012), construction stakeholders and construction companies within the Nigerian construction are to apply project improvement initiatives to improve their performance, since the fundamental objectives are to deliver the construction projects to the required quality more quickly and also to improve project performance within budget and requirement.

2. MAJOR CONSTRUCTION COMPANIES IN THE NIGERIAN CONSTRUCTION INDUSTRY

According to Odediran *et al.* (2012), Nigeria as a nation is still at the infancy stage of infrastructural development where lots of construction activities are being carried out across the nation by the federal, state and local governments as the major clients in Nigeria. All these construction activities are carried out by construction companies either indigenous or multinationals whose structure at times affects the level of construction output in the construction industry. But, the execution of most of these construction works are being carried out by the foreign construction firms but changes in government, transformation agenda and local content policy in infrastructural sector has created rooms for Nigerian indigenous contracting firms to grow and participate in the developmental processes.

Basically in Nigeria, the construction companies are classified on the scope of operation, ownership and management control (Idiako & Bala, 2012). Like other nations of the world, construction companies could be classified as small, medium and large. In Nigeria, large companies are majorly dominated by the multinationals with very few indigenous that could be categorized as medium while most are categorized as small size firms. Conceptual evidence revealed that Julius Berger Nigeria Plc is the leader in the Nigerian construction industry, as it controls a large chunk of public sector construction work in the industry. With the entrance of Chinese construction giants into the Nigerian construction industry, the dominance of Julius Berger Company began to face significant threat in the long term. For example, China Civil Engineering Construction Company was appointed by the Lagos State Government as

the contractor for the Lagos Light Rail Project. The company was also awarded the rehabilitation of Lagos-Jebba rail track by the Federal Government of Nigeria. The growing popularity of Public Private Partnership (PPPs) also means more international construction firms are likely to come into the Nigerian construction industry as observed by Odediran *et al.* (2012).

The medium-size construction companies in Nigeria includes; Costain W.A. Plc, PW Nigeria, Cappa & D'Alberto, Stabilini Visinoni, Bi-Courtney Limited, Lekki Concession Company, Reynolds Construction Company Ltd and Setraco Nigeria Limited. Others are Gerrawa Global Engineering Limited, Piccolo-Bunelli Engineering Ltd, Kopek Construction, Niger Construction Ltd, Enerco Limited, BoriniProno& Company Limited, Arab Contractors Limited, Triacta Limited, CGC Nigeria Limited, Standard Construction Limited, Dantata & Sawoe Construction Company Nig. Ltd., and Mother Cat Limited. There are also many low-size construction companies that execute large proportion of construction works in the Nigerian construction industry.

2.1: The Indigenous Contractors in the Nigerian Construction Industry

The Nigerian construction industry is dominated by foreign companies in which most of the construction works are been undertaken by multinationals in the construction industry (Adams, 1997). According to Olugboyega (1998), this was as a result of the deficiencies and incapability on the part of the indigenous companies in the areas of financial effectiveness, innovations, dynamism among others. A large proportion of these major constructing companies in the Nigerian construction industry are subsidiaries or affiliates of European, North American and Asian construction firms. The choice and preference for engaging foreign contractors in Nigerian industry as compared with other indigenous contractors is majorly based on the lack of technical competence, deficiency in managerial skills and planning. Others include poor financial management, adaptations to modern innovations among others as observed by Enshassi *et al.* (2007) and Idoro (2007). However, several other indigenous contractors still entered the Nigerian construction industry without any prior experience or technical knowhow of building or civil engineering work. They may start as petty contractors handling only supply of minor building materials until they graduate to actual contracting for the complete execution of construction projects.

2.2: The Foreign Contractors in the Nigerian Construction Industry

Construction companies, mainly from the developed countries, are adopting strategies of internationalization that

enable them to benefit from the global construction market. In particular, some American and European construction companies have moved their entire operations to the Middle East, with lower running costs, more work and opportunities. According to Ngowi *et al.* (2005), there are several ways in which construction companies enters the international markets, for instance through; (a) economic booms such as the one resulting from sale of oil, (b) bilateral and multilateral agreements, which set up protocols that enable companies of the participating countries to enter the major corporations. In view of this, to reach a competitive position in the globalized construction market, construction companies are increasingly interested in cross-country performance comparisons.

In Nigeria, a large number of expatriates were engaged in the Nigerian construction industry since 1974 till date. These expatriates worked with either foreign construction companies or indigenous ones. In order to control the number of expatriates employed by the companies, the Nigerian government applied a quota system. A government decree set Nigerian participation in construction companies at 60%. As a result of this, it became essential for some of the foreign construction companies to team up with the existing indigenous construction companies. This allow for a proportion of Nigerian professional and technical staff to be employed by foreign construction companies who may otherwise prefer to recruit mainly expatriates into their companies.

In the area of specialized work and huge or complex construction projects, some foreign construction companies have an edge over their indigenous counterparts in the construction industry. For example, Julius Berger, which is a German construction company, has been enjoying tremendous goodwill from the Nigerian Government and recently more than many other multi-national construction companies for the execution of many heavy construction projects in many part of Nigeria. Other construction companies in the industry have attempted to implement systematic methods of performance so as to achieve a sustainable growth, profitability and competitive advantages in the industry.

3. MAJOR PROCUREMENT STRATEGIES AND PROCESSES IN THE NIGERIAN CONSTRUCTION INDUSTRY

Procurement of construction project is very vast in scope because it involves the gathering and organizing of myriads of different individuals, firms and companies to design; manage and the construction infrastructures such as houses, office buildings, shopping complex, roads, bridges etc., for specific clients or customers in achieving certain goals or objectives. Procurement comes from the word procure which literally means "to

obtain by care or effort”; “to bring about” and “to acquire”. Hence, system or strategy is about “organized method, approach, technique, process or procedure”.

Masterman (1996) described project procurement as the organizational structure needed to design and build construction projects for a specific client. The Aqua Group (2001) also described procurement as the process of obtaining or acquiring goods and services from another for some consideration. Similarly, the Scottish Government describe construction project procurement as a term that encompasses the purchase of construction related services with the ultimate aim of “the creation of a new building or structure, including all associated site works, alteration, refurbishment, maintenance, extension or demolition of an existing building or structure”.

The Nigerian construction industry was modelled after the British system, but since independence in 1960, the construction industry has incorporated the styles of other western countries such as Italy, Germany and France. The country’s procurement system is also derived from British practice. The system has the following distinct features:

- Although standard forms of contract are used by the public clients, greater emphasis is still placed on fixed-price contract.
- The Nigerian Federal Ministry of Works and Housing uses competitive tendering, as well as selective bidding for some specialist megaprojects.
- In the private sector, contracts are left open for negotiation. The corporate clients in the private sector

include the multinational firm in the oil and petro-chemical industries, banks, property developers and other business investors.

- A direct labour system is not as widely used as it has been in the past few years in the wake of the Nigerian Federal Government’s rationalization of direct labour units of the public-works department.

Since the continuous recession in the Nigerian economy according to Bustani (2004), the construction stakeholders had been searching for a new and better procurement strategy that will ensure successful and economic completion of construction projects at the stipulated time and reduce complaint of time and cost overruns of construction projects. Because according to Achuen & Shinkut (2006), project procurement strategy is a key factor that contributes to the overall client satisfaction and the entire success of a project. Further to this, Achuen & Shinkut (2006) opined that procurement strategy is critical and that it determines the overall framework which embraces the structure of responsibilities and authorities of participants in the construction process.

In recent time, construction projects in Nigeria are procured through three major procurement strategies; the conventional procurement strategy (Design-Bid-Build), the non-conventional procurement strategy (Design-Build) and the new or modern approach procurement strategy (Public-Private-Partnership). Figure 1 shows the categorization and sub-categorizations of the various procurement strategies employed in Nigerian construction industry.

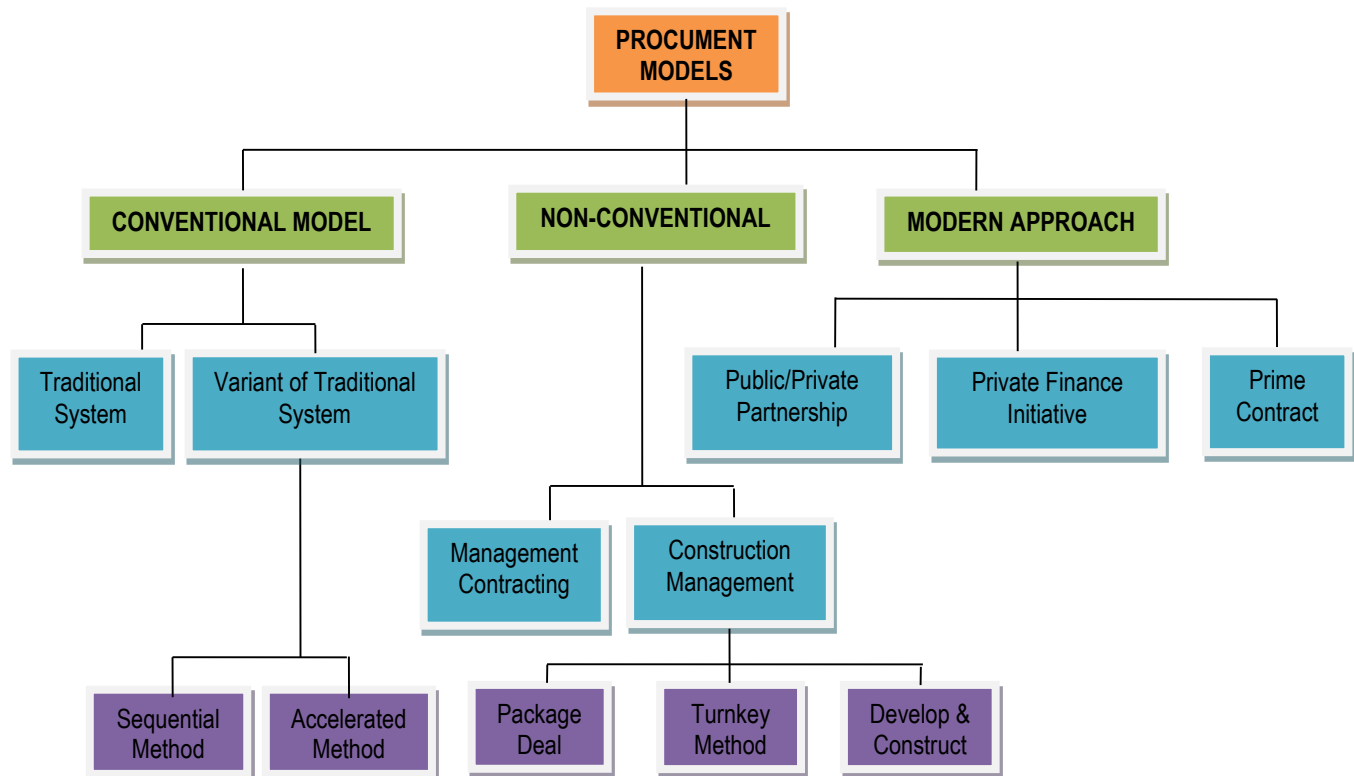


Figure 1: Categorization of Procurement Strategies in Nigeria.

3.1: The Conventional Procurement Strategy (Design-Bid-Build).

The conventional procurement strategy is a project procurement strategy where the three sequential phases of design, bid and build are carried out as separate tasks. The procurement strategy is traditionally referred to as the competitively bid contract. This procurement strategy allows for all contractors that feel competent to bid for projects in a free and competitive atmosphere. The procurement strategy generally involve the clients or their agents in the design or at least specifying in detail the work required prior to competitive tenders being invited from group of construction contractors. This procurement strategy according to Babatunde *et al.* (2010) was acknowledged to be most commonly used in the Nigerian construction industry.

participant's conflicting loyalties in the projection of objectives, claim consciousness at the design stage, lack of commitment to project objectives or customer focus, parochial attitudes and biases that often time become overriding to overshadow project goals, the possibility of the legal contracts that bind project participants together

The primary feature of this procurement strategy is that design is separated from construction. The concept of this procurement strategy imposes a contractual and organizational separation of design from construction. The implication of this is that in order to assure low risk, the design has to be completed before competitive tenders are invited and before the main construction contract is awarded. This simply means that the procurement strategy will be relatively slow or time consuming (Ojo, 2009 and Babatunde *et al.* 2010).

The major challenges or limitations of this strategy includes: serial and hierarchical project development philosophy with possible time and cost overruns, lack of single point responsibility, adversarial relationships,

becoming the basis for finger pointing, litigation and broken relationships, no guarantee of certainty of final cost (Ofori, 1990; Odeh & Battaineh, 2002; Babatunde *et al.* (2010); Ojo *et al.* (2011); and Dada (2013). Figure 2 describes a typical structure of conventional procurement strategy in the Nigerian construction industry.

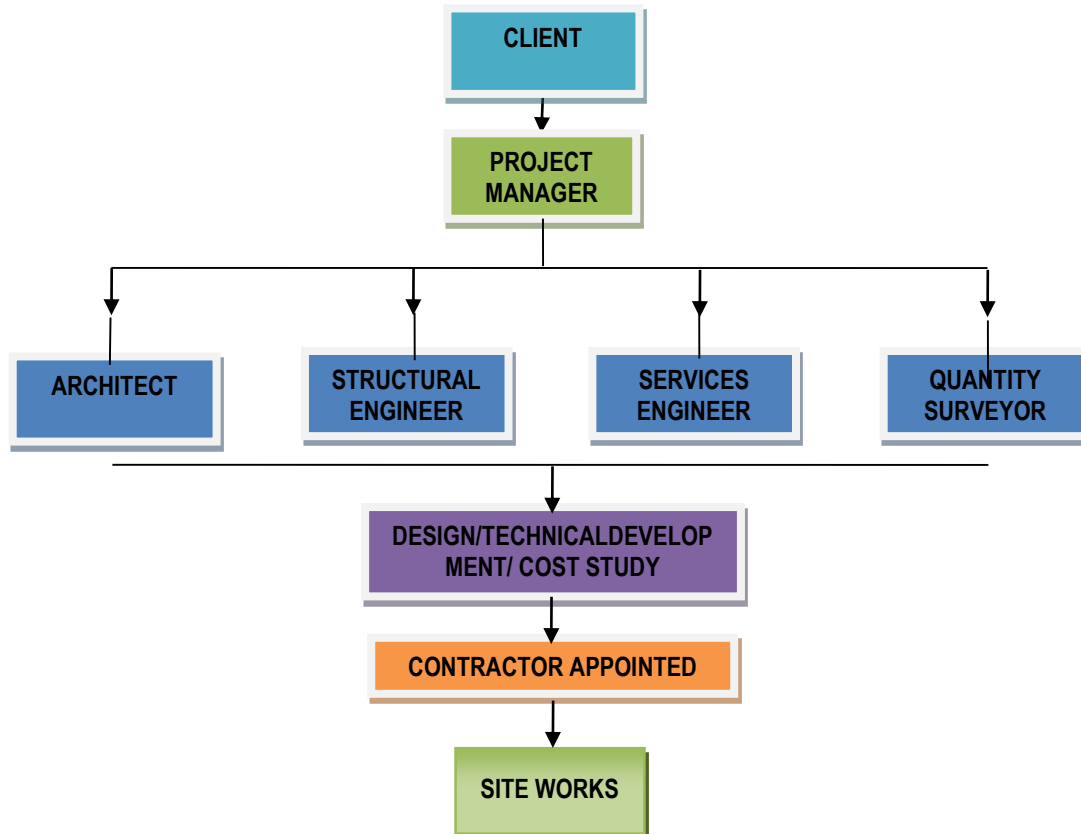


Figure 2: Conventional Procurement Strategy

3.2: Non-Conventional Procurement Strategy (Design-Build)

The Design and Build is an alternative procurement strategy to conventional or traditional procurement strategy this has the belief that design and construction activities should be integrated, meaning that the commencement of construction before the design is fully completed. Moore & Dainty (1999) noted that the Design and Build procurement strategy is an integrated procurement approach in which a contracting organization takes responsibility for all aspects of the project

this therefore gives the client a single point contract, securing the project for a pre-agreed price and possibly in a time scale not otherwise achievable without considerable risk. But the client commits to the cost of construction, as well as the cost of the design, much earlier than with the conventional or traditional procurement strategy.

The D-B strategy has two major variants, the “pure design-build” and the “fragmented design-build”. The categorization of the variants encourages spatial, temporal

and sentient differentiation according to Ojo *et al.* (2011). Both variants are commonly used in the Nigerian construction industry in the procurement of construction projects, which are further classified as: Develop and Construct; Package Deal; Turn-Key; Management Contracting; and Construction Management (Babatunde *et al.* 2010; Ojo *et al.* 2011). Figure 3 shows a typical D-B strategy, while figures 4 and 5 describe the sequences of D-B-B and D-B strategies in the Nigerian Construction Industry (CI).

However, despite the claimed advantages of the D-B strategy, it has the potential for disputes and claims at the construction stage particularly if the client's requirements had not been well defined at the development stage of the project (Anumba & Evbuomwam, 1997). Also by this strategy, the client has reduced representation and fewer checks and balances (Molenaar *et al.* 1998) and hence, quality assurance can be an issue of concern for the client (Al-Khalil 2002).

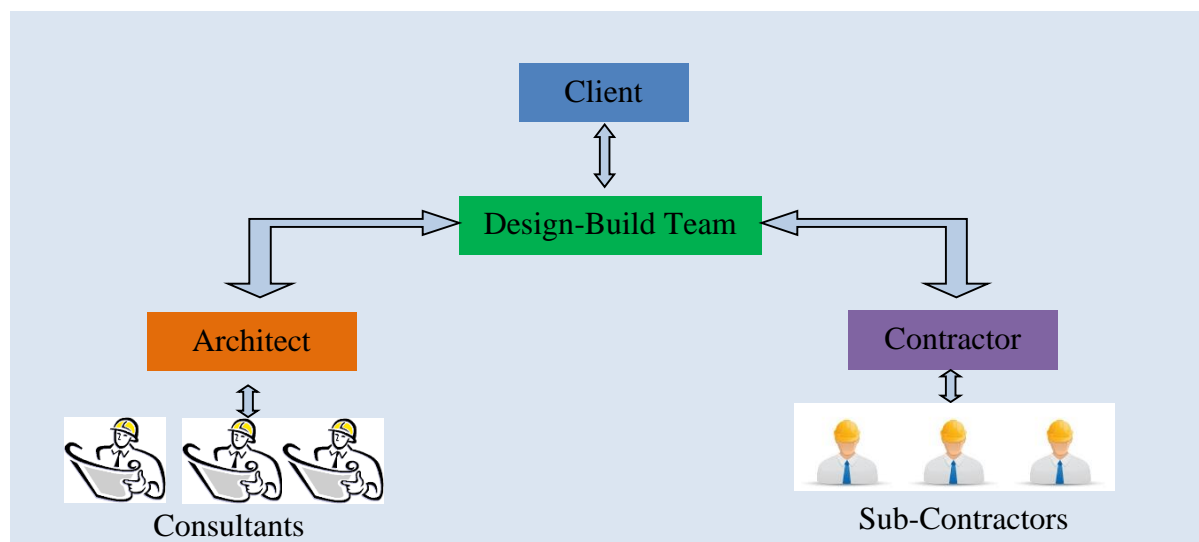


Figure 3: Non-Conventional Procurement Strategy (Design-Build)

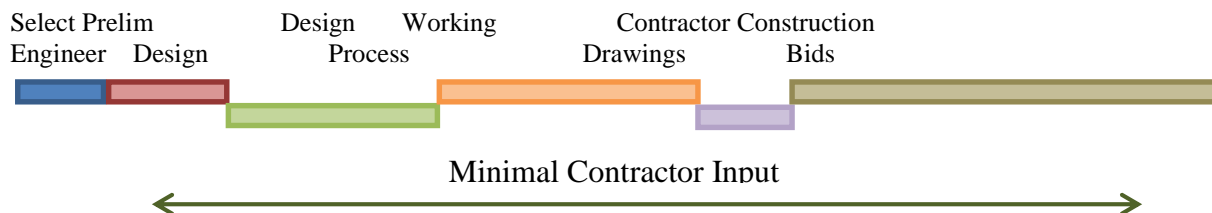


Figure 4: Sequence of Design-Bid-Build Strategy.

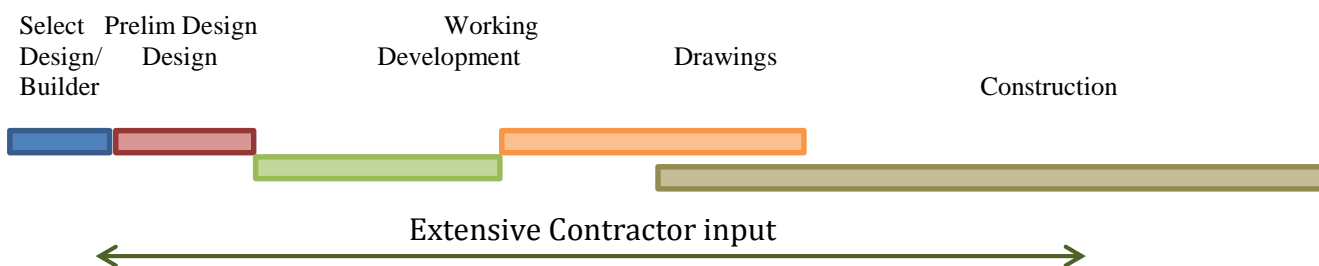


Figure 5: Sequence of Design-Build Strategy.

3.3: Modern Approach of Procurement Strategy (Public-Private-Partnership)

Public-Private-Partnership procurement strategy is a long-term contractual arrangement or franchise under which a private firm finances and manages the production of good and/or services for, or on behalf of, the government (Pongsiri, 2002; Bult-Spiering & Dewulf, 2006). The

World Bank (2006) described PPPs as a private sector participation in service and infrastructure provision. Similarly, Best Practice Document (2009) observed that the terms Public-Private Partnerships (PPPs), Public-Private Partnerships in Infrastructure (PPPI) and Private Participation in Infrastructure (PPI) are used interchangeably to refer to governments collaborating with

private companies (domestic or foreign) in various ways to build and/or operate infrastructure facilities. In the same vein, Adamu *et al.* (2015) opined that PPPs entails the participation of government, marketers or investors and non-profit private sectors in the provision of social services and infrastructure hitherto provided by the government.

The primary objective of PPPs is to facilitate the economic delivery of high-quality public facilities and services by the private sector over an extended period of time at a cost that represents value for money, whilst at the same time transferring an appropriate level of risk to the private sector (Lane & Gardiner, 2003; Ibrahim *et al.* 2006).

In the recent time, the application of PPP in Nigeria has become increasingly popular for both new projects and the operation and management of old facilities. However, many infrastructure projects that had been developed through PPPs have failed or even did not materialize (Levy, 1996; Ogunlana, 1997; Birgonul & Ozdogan, 1998 and Abdul-Aziz, 2001). In view of the limitations and challenges associated with the implementation of PPPs in the Nigerian construction industry according to Ibrahim *et al.* (2006) given the multitude of the stakeholders, the duration of a typical PPP project and the complexity of contractual

agreements involved, it is imperative for both the public and private sectors to understand the various risks associated with PPPs procurement strategies throughout the whole life cycle of a project, so as to be able to determine the economic strength of the project.

In recognition of the enormous challenges of PPPs, the Nigerian Government has made great stride in the establishment of mechanisms and frameworks for Public-Private Partnership (PPP) which include the adoption of the ICRC Act in 2005 and the subsequent creation of the ICRC office, the enactment of National Policy on PPPs in 2009 and the formulation of Public-Private Partnership Regulations (PPPR) in 2011 (Sanusi, 2012). Furthermore, as a support to the Commission, two Centers were established. A PPP Resource Centre (PRC) and a Contract Compliance Centre (CCC). Some additional legislation were also put in place to enhance the implementation of PPPs in Nigeria which include: (i) the Public Procurement Act 2007 (Procurement Act); (ii) the Bureau of Public Enterprises (BPE) (Privatization and Commercialization Act 2009; (iii) the Debt Management Office (DMO) Act 2003; (iv) The Fiscal Responsibility Act 2007; (v) The National Planning Commission Act 2007. Figure 6 shows a typical structure of PPPs in the Nigerian construction industry.

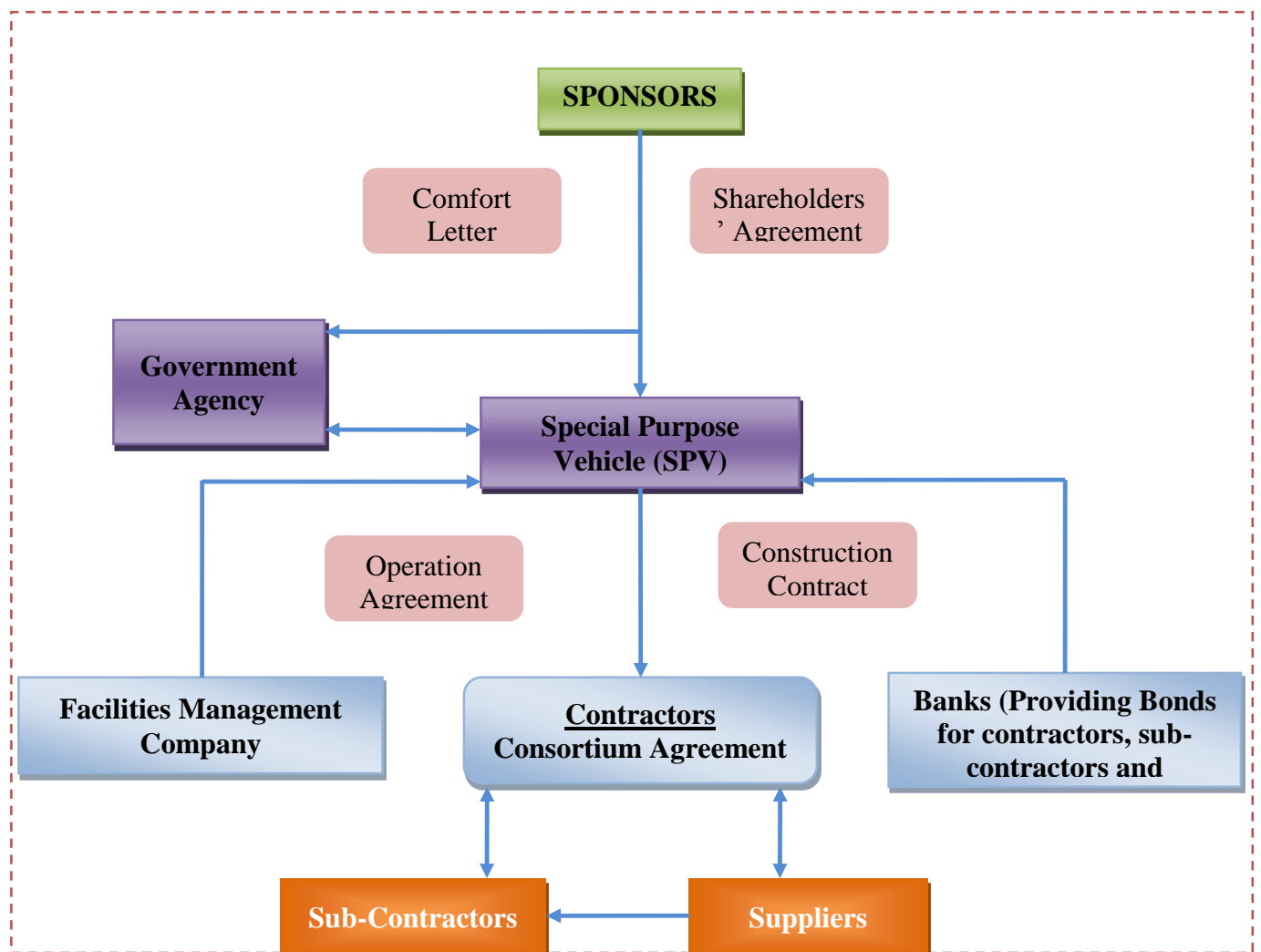


Figure 6: Typical PPP Structure in Nigeria

4. MAJOR CHALLENGES OF THE NIGERIAN CONSTRUCTION INDUSTRY

Construction projects in Nigeria involve the business engagement between three parties, namely the client or investors, the contracting parties and the consultants. This business engagement between these parties occurs in a socio-economic and environmentally sensitive business environment of the construction industry. The construction industry environment consists of many external factors that could influence the progress and success of any project development in terms of its delivery and performance.

In the Nigerian construction industry today, many construction projects are seriously facing cost and time overruns as a result of financial and market behaviour, unavailability of the required machinery, labour shortage or strikes. Other factors like inadequate planning, delay due to subcontractors, lack of proper co-ordination, poor administration, deficiency in construction activities, shortage of technical staff and poor communication, conceptual differences in projects, inadequate feasibility studies, deficiency in the required technology and economic instability in the country (Aibinu & Jagboro, 2002; Omoregie & Radford, 2006; and Ameh *et al.* 2010). According to Ameh *et al.* (2010), only 48.8% of public sector and 37.2% of the private sector projects were found completed within the stipulated budget in Nigeria while only 20.5% of the public and 12.5% of the private sector projects were completed within the construction time between the year 2005 and 2010.

Furthermore according to Adams (1995) the indigenous construction companies in Nigeria are predominantly small and medium-sized; their participation in major construction works is marginal, this according to Idiaka & Bala (2012), the indigenous construction companies undertake only 5% of the purely civil engineering construction and 25% of the building works, while the foreign companies undertake not less than 85% of the civil and building construction works combined. Other challenges faced by these indigenous contractors include;

- Lack of adequate experience at senior management level and poor technical manpower.
- Inadequacy of finance for long and short term purposes.
- Very low level of productivity.
- The “get rich quick” contractors prefer hush money to proper business development.
- Absence of specialization.

In a related development, Jimoh (2012) noted that in Nigeria, construction practice in the recent time is becoming more complex technically and administratively with more several challenging engineering and management problems impacting negatively on the development of infrastructure.

Similarly, with the involvement of the multinationals in the execution of construction projects in Nigeria according to Adamu & Kolawole (2011), the construction industry in Nigeria is still inherently ineffective, inefficient and excessive costly. The study identified many of the key

limitations of the traditional approach to procuring the contracts such as: the emphasis on lowest price rather than value for money; and the lack of client focus. Adamu & Kolawole (2011) further criticized: ineffectiveness of government performance as a construction client; poor communication with contractors; lack of understanding of risk and its management; unrealistic budgets and timetables; and over simplistic view of competition with emphasis on long tender lists and initial price rather than quality and long term costs of the construction projects. The presences of all these challenges have been affecting the effectiveness and efficiency of construction projects delivery and its performance in the Nigerian construction industry.

5. CONCLUSION

This study examined the characteristics of Nigerian construction industry in infrastructure development and the major challenges impacting on the successful implementation of the various procurement strategies in Nigeria.

The adoption of the various strategies has been instrumental to reducing the financial burden on the Federal and State government in Nigeria in response to the increase demand for more infrastructure facilities coupled with the bad state of the existing ones in Nigeria. This paper therefore examined the state of infrastructure development and the objectives of various procurement strategies adopted in Nigerian construction industry by assessing the major construction companies and procurement strategies. This study also examined the factors affecting the effectiveness and efficiency of the Nigerian construction industry. The findings of the study revealed that the development of infrastructure has been on three major procurement strategies namely, the Design-Bid-Build, the Design-Build and Public-Private Partnerships, the findings further revealed that the key challenges affecting the effectiveness and efficiency of Nigerian construction industry in infrastructure development centred around; (i) project preparation management process, (ii) project bankable feasibility study, (iii) balance risk allocation and regulation, and (iv) enabling project environment. This has resulted to the poor social-economic development in Nigeria.

The study further revealed that the efficiency and effectiveness of the Nigerian construction industry in infrastructure development will depend upon the ability of the public sectors in addressing the key challenges of the procurement strategies employed in the industry.

As the procurement strategies employed in the Nigerian construction industry are becoming complex by each day, the study therefore concluded that it is therefore imperative to;

- Enhance the confidence of the client; the public and private investors on the procurement strategies that will ensure completion of a project within budget and time stipulated,

- Know the circumstances under which any of the procurement strategies can be best used,
- Enlighten construction industry stakeholders on how to meet the expectation of completion within budget and time stipulated and without compromising quality of the project, and
- Determine the appropriate procurement strategy with a high yield of economic returns of the project.

6. REFERENCES

- [1] Adams, O.A. (1995) "Indigenous Contractors' Perceptions of the Constraints on Contractors Performance and Development Programmes Required in Nigeria". *HABITAT International*, 19(4), pp.599-613.
- [2] Acheunu, E. & Shinkut, R. (2006) "Appraisal of Building Contract Procurement Methods in the Nigerian Construction Industry". *Journal of Construction Technology and Management*, 7(1), pp.90-98.
- [3] Abdul-Aziz, A.R. (2001) "Unravelling of BOT Scheme: Malaysia's Indah Water Consortium". *Journal of Construction Engineering and Management*, 127(6), pp. 457-460.
- [4] Adams, O. (1997) "Contractors Development in Nigeria: Perceptions of Contractors and Professionals". *Journal of Construction Management and Economics*, 15(1), pp.95-108.
- [5] Adamu, M., Lowe, J. & Manase, D. (2015) "Conceptual Framework for Public-Private Financed Road Infrastructure Development in Nigeria" *International Journal of Engineering Research and Technology*, 4(8), pp.586-590.
- [6] Adamu, M., & Kolawole, B.O. (2011) "The Role of Construction Industry in Arresting Rural Urban Drift in Nigeria". *Journal of Environmental Research and Policies*. 6(3), pp.83-94.
- [7] Aibinu, A.A. & Jagboro, G.O. (2000) "The Effects of Construction Delays on Project Delivery in Nigerian Construction Industry". *Journal of Project Management*, 20(8), pp.593-599.
- [8] Al-Khali, M.I. (2002) "Selecting the Appropriate Project Delivery Method Using AHP". *International Journal of Project Management*, 20(6), pp. 469-474.
- [9] Acheunu, E. & Shinkut, R. (2006) "Appraisal of Building Contract Procurement Methods in the Nigerian Construction Industry". *Nigerian Journal of Construction Technology and Management*, 7(1), pp. 90-98.
- [10] Ameh, O.J., Soyngbe, A.A., & Odusami, K.T. (2010) "Significant Factors Causing Cost Overruns in Telecommunication Projects in Nigeria". *Journal of Construction in Developing Countries*. 15(2), pp.49-56.
- [11] Anumba, C.T & Evbuomwan, N.F.O. (1997) "Concurrent Engineering in Design-Build Projects". *Journal of Construction Management and Economics*, 15(3), pp.271-281.
- [12] Babatunde, S.O., Opawale, A. & Ujadugbe, I.C. (2010) "An Appraisal of Project Procurement Methods in the Nigerian Construction Industry". *Civil Engineering Dimension*, 12(1), pp.1-7.
- [13] Best Practice Document (2009) "Fostering the Development of PPP Models in COMESA Region" *Biz Clim*.
- [14] Birgnoul, M.T. & Ozdogan, I. (1998) "A Proposed Framework for Governmental Organization in the Implementation of Build-Operate-Transfer (BOT) Model in W. Hughes, Ed, Proceedings of 14th Annual ARCOM 1998 Conference, University of Reading, UK.
- [15] Bult-Spiering, M. & Dewulf, G. (2006) "Strategic Issues in the Public-Private-Partnership: An International Perspective, Blackwell, Oxford.
- [16] Bustani, S.A. (2004) "An Appraisal of Tender Evaluation Practice for Public Construction Projects in Nigeria". PhD Thesis Submitted to School of Postgraduate Studies, University of Jos, Nigeria.
- [17] Dada, M.O. (2013) "Client and Contractor Organizations' Assessment of Design-Bid-Build Procurement Practice in Nigeria. *Alam Cipta*, 15(1), pp. 1-10.
- [18] Enshassi, A., Mohammed, S., Mayer, P. & Abed, K. (2007) "Bench-Marking Masonry Labour Productivity". *International Journal of Productivity and Performance Management*, 56(4), pp.358-368.
- [19] Ibrahim, A.O., Price, A.D.F. & Dainty, A.R.J. (2006) "The Analysis and Allocation of Risks in Public-Private-Partnerships in Infrastructure Projects in Nigeria". *Journal of Financial Management and Construction*, 11(3), pp.149-163.
- [20] Idiako, J.E. & Bala, K. (2012) "Improving Labour Productivity in Masonry Works in Nigeria: The Application of Learn Management Techniques". *Proceedings of 4th West-Africa Built Environment Research (WABER) Conference, Abuja, Nigeria.*
- [21] Idoro, G.I. (2007) "A Comparative Study of Direct Labour and Design-Tender-Construct Procurement System in Nigeria". A PhD Thesis Submitted to School of Postgraduate Studies, University of Lagos, Nigeria.
- [22] Ijigah, E.A., Olorunfoba, K. & Mohn, H.R. (2012) "Towards Accomplishing Millennium Development Goals (MDGs) in Abuja, FCT Nigeria: The Project Management Consultant Roles.
- [23] Lane, M. & Gardiner, J. (2003) "Risk Management and Insurance Issues in Public-Private Partnerships- A Review of Key Issues, European Construction Institute, pp. 61-70.
- [24] Lee, A., Cooper, & Aouad, G. (2001) "A Methodology for Designing Performance Measures for the UK Construction Industry", Salford University.
- [25] Levy, S.M. (1996) "Build Operate Transfer". Wiley, New York.
- [26] Mansfield, N.R., Ugwu, O.O. & Doran, T. (1994) "Causes of Delay and Cost Overruns in Nigerian Construction Projects". *International Journal of Project Management*, 12(4), pp.254-260.
- [27] Masterman, J.W.E. (1996) "Building Procurement Systems: An Introduction". E & FN Spon Press, London.
- [28] Molenaar, K., Zimring, C. & Augenbroe, G.A. (1998) "A Guide to Project Delivery for Federal Buildings". Report to U.S. General Services Administration, Washington, DC 22P.
- [29] Moore, D.R. & Dainty, A.R.J. (1999) "Integrated Project Teams Performance in Managing Unexpected Change Events". *Team Performance Management*, 5(7), pp.212-222.
- [30] Ngowi, A., Pienaar, E., Talukhaba, A. & Mbachu, J. (2005) "The Globalization of Construction Industry: A Review". *Journal of Build Environment*, 40(1), pp. 135-141.
- [31] Odeiran, S.J., Adeyinka, B.F., Opatunji, O.A. & Morakinyo, K.O. (2012) "Business Structure of Indigenous Firms in the Nigerian Construction Industry". *International Journal of Business Research and Management*, 3(5), pp.255-264.
- [32] Odeh, A.M. & Battaineh, H.T. (2002) "Causes of Construction Delays: Traditional Contracts". *International Journal of Project Management*, 20(1), pp.67-73.
- [33] Ofori, G. (1990) "The Construction Industry: Aspect of Its Economic and Management". Singapore University Press, Singapore.
- [34] Ogunlana, S.O. (1997) "Build Operate Transfer Procurement Traps: Example from Transportation Projects in Thailand". *Proceedings of CIB W92 Symposium on Procurement, IF Research Corporation, Montreal, pp.585-594.*

- [35] Ojo, S.O. (2009) "Benchmarking the Performance of Construction Procurement Methods Against Selection Criteria in Nigeria". *Civil Engineering Dimension*, 11(2), pp. 106-112.
- [36] Ojo, S.O., Aina, O. & Adeyemi, A.Y. (2011) "A Comparative Analysis of the Performance of Traditional Contracting and Design-Build Procurements and Implications for the Engineering Practice on Client Objectives in Nigeria". *Journal of Civil Engineering and Management*, 17(2), pp. 227-233.
- [37] Olugboye, A.A.A. (1998) "Indigenous Contractors Perception of the Importance of Topics for Contractor Training in Nigeria". *HABITAT International*, 22(2), pp. 137-147.
- [38] Omoregie, A. & Radford, D. (2006) "Infrastructure Delays and Cost Escalation: Causes and Effects in Nigeria". *Proceedings of the Sixth International Postgraduate Conference*, Delft University of Technology and TNO, The Netherlands.
- [39] Sanusi, L.S (2012) "The Role of Development Finance Institutions in Infrastructure Development: What Nigeria can learn from BNDES and the Indian Infrastructure Finance Company, Keynote Address; 3rd ICRC PPP Stakeholders Forum.
- [40] The Aqua Group (2001) "Tender and Contract for Building". 3rd Edition Blackwell Science, London.
- [41] Toor, S. & Ogunlana, S. (2010) "Beyond the Iron Triangle: Stakeholders Perception of Key Performance Indicators (KPIs) for Large-Scale Sector Development Projects". *International Journal of Project Management*, 28, pp. 228-236.