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STRATEGIC SUPPLY CHAIN FRAMEWORK AS AN EFFECTIVE APPROACH TO PROCUREMENT OF PUBLIC CONSTRUCTION PROJECTS IN NIGERIA

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ABSTRACT

A lot of abandoned construction projects, and failed projects in the Nigerian construction industry due to the ignorance to adopt and implement modern procurement strategy prompt this research work. A survey was conducted on 38 procurement practitioners at the Federal Ministry of Housing, Land and Urban Development, Major contractors, and Tier suppliers. The result from the survey showed that 78% of respondents confirmed that the current Nigerian public procurement system is less effective towards achieving an improved construction performance and the successful delivering of construction projects. More so, 22% of respondents argued that the Nigerian current procurement system is effective to achieve an improved construction performance if properly practiced in accordance with the Nigerian procurement act (2007). However, 74% of respondents believed that the strategic supply chain framework, as an approach to public procurement in Nigeria, will be more effective towards successful delivering of construction projects, and achieving improved construction performance. Also, the result from the three interviews conducted during this research showed that the reasons for the poor Nigerian current procurement system is attributed to poor pre-tendering and tendering processes, poor supply chain integration and management, Political interference and inference, and the corruption amongst the procurement stakeholders.

Keywords: Procurement, Framework, Supply chain, Integration, Construction performance, Performance.

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Contribution/ Originality

This study originates a new approach to procuring public projects in Nigeria which, when adopted, will improve the construction performance of public projects, and encourage socio-economic development through procured public projects.

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1. INTRODUCTION

The Nigerian construction industry evolved from the public works department (PWD) that metamorphosed into the Federal Ministry of Works, Departments, and Agencies (MDAs) and now Federal Ministry of Housing, Land and Urban Development (Wahab and Lawal, 2011). The major customer of the industry is the federal government; state government and tier local governments that procure 70% of the construction project while the private sector procure the remaining 30% of construction projects. However, the reverse is the case in other countries where it is a private-sector driven (Ogunbiyi, 2004 cited in Wahab and Lawal (2011)).

The construction Industry plays an important role in the Nigerian economy. Wahab and Lawal (2011) confirmed from the records of the Federal Office of Statistics that the construction industry in Nigeria has contributed about 2% of the Nigeria's gross development product (GDP) in the past fifteen years, and 69% of the Nation's Gross Fixed Capital Formation. Moreover, proof has been made from the empirical studies to establish this fact, that 1% of increase in the infrastructural stock generates 1% increase in the gross domestic product across all countries. In the developed countries, 20% of the gross domestic product and 12% of the total employed labour force are contributed by the construction industry, and the Nigerian construction industry is responsible for 61% of the GDP and employs up to twenty per cent of the total labour force (Akindoyeni, 2004).

The poor construction performance of the Nigerian construction industry is a result of the procurement system (Dada, 2012). Therefore, the purpose of this research is to improve the construction performance in procuring the public infrastructure projects in Nigeria by proposing a more strategic approach to the procurement system. The purpose of this research is justified greatly, due to problems of the non-conventional procurement practices of the Nigerian procurement system which led to the delivering of projects above budget, and behind schedule. Also, there are none collaboration and integration in the procurement system, which results from the poor supply chain management in the Nigeria public procurement system. Furthermore, the procurement practitioners in Nigeria have shifted from meeting the clients' needs to the apportionment of risk, insufficient flow of cash down the supply chain because they lack fair means of payment, and poor governance of stakeholder relationship within the supply chain.

The aim of this study is to examine the limitations of the current procurement system in Nigeria towards delivering a successful construction projects, and to propose a strategic supply chain frame as an effective and alternative procurement approach to counter those limitations in the Nigerian construction industry. The objectives for this study is to review the current Nigerian public procurement system and practices, identify the bottlenecks in the current Nigerian procurement system and to propose an alternative procurement approach to strengthen those bottleneck. A lot of people including the procurement practitioners have a limited knowledge about procurement. Some of them think procurement starts from the design stage and ends when the project construction is completed, while some think, procurement is just the

process of selecting contractors for a project. Procurement goes further than that. Procurement in the construction industry starts from the project pre-initiation stage (the stage in which the idea and need of embarking on a particular project is decided) and extend to the post-construction stage (the commissioning, and maintenance stage). This research is based on the questions: is the current Nigerian procurement system effective to achieve successful construction projects?, is there any bottleneck in the system that needs to be straightened in order to achieve successful projects?. Finally, will the alternative strategic approach, which will be proposed by this research, be effective in achieving construction excellence if implemented?

The sections below provides the detail literature on the Nigerian current procurement, the methodology and data collection used, the findings and discussion, and the recommended strategy alternative procurement approach to improve the delivering of successful construction projects. Public procurement in construction can be defined as the acquisition of infrastructural goods and services by the government or public sector organizations (Uyarra and Flanagan, 2010). According to Edler and Georghiou (2007) public procurement signifies the main source of demand for firms in construction, health care, and transportation sectors. Public procurement has accounted for a significant proportion of infrastructural development. According to the forum on Public procurement reforms in Africa by the African Development Bank (2009) cited in Anigbogu and Shwarka (2011) public procurement accounts for up to seventy per cent of the African government budgets. More so, the European Union (EU) represents 16% of the combined EU-15 Gross Domestic Product (GDP). It is increasingly seen as an attractive and feasible instrument for furthering the goals of innovative policy (European commission, 2005 in Uyarra and Flanagan (2010)). Edler and Georghiou (2007) confirmed that public procurement is an instrument for innovation but argued that the potential offer and challenges posed in using public procurement for innovation have been conceptually and practically ignored in innovation policy. Evenett and Holekman, (2005) cited in Brammer and Walker (2011) made some findings that government purchasing accounts for approximately 5% of the combined national outputs after studying the public procurement activity in 106 developing countries including Nigeria.

The traditional procurement, which is one of the public procurement methods, was the most prevalent method of procurement all over the world until the shortcomings of the method started to appear in the literature around 1960s (Ojo *et al*., 2006). And the procurement processes in Nigeria, after investigation by some researchers, was concluded that the traditional method of procurement is the most preferred and dominating method of procuring both private and government projects (Idoro, G.I., in Dada (2013)). However, the major criticism about the traditional procurement method was due to the fact that the design and construction stage are being treated as separate entities under the traditional contracting agreement.

In addition, traditional method of procurement has been widely criticized as not being efficient in delivery of construction project because of its time and cost overrun. Research has shown that traditional procurement has the tendency of 53.5% cost overrun and 160% time

overrun in a result from the study of thirty-five building project at the South-Western Nigeria (Ojo, Adeyemi, &Ikpo cited in Ojo *et al.* (2006)). Furthermore, the analysis done on the cost effectiveness of direct labour indicated that a cost overrun of 36.72% would have been incurred on the 2,772 housing units in the metropolitan city of Lagos-Nigeria if the traditional contract procurement method was used. Moreover, the limitations of the traditional method of procurement to the delivery of projects on schedule, and the cost overrun, led to the emergence of alternative methods of procurement such as construction and project management, design-build, and management contracting method of procurement. And, these alternative methods have been found to achieve timely project delivery within budget, as against the traditional method due to integration of design and construction (Babatunde *et al.*, 2010). However, despite the known failure of the traditional method of procurement, the private and public sectors in Nigeria still use the method mostly for the procurement of construction projects and services. Therefore, applying strategic supply chain framework in the processes of the traditional procurement system creates a strategic procurement system that will improve construction performance and provide a more sustainable supply chain. Strategic supply chain framework imply steady purchase of goods or services from particular few suppliers, who deliver the exact need of the customer on schedule without exceeding the customer's budget, and who also encourage their own tier suppliers to do the same (Wilson and Roy, 2009). Thus, there is a long-term relationship between the chain of suppliers and the customer over a period of time, incorporating trust and commitment.

In the Nigerian public procurement system, the strategic supply chain framework has not been widely recognised (Adamu and Abdul Hamid, 2012). And, as mentioned earlier in this literature, traditional method of procurement is and remains the dominating method of procuring public construction projects in Nigeria. However, the major criticism on the traditional method of procurement was that the design and construction processes were being treated as separate entities under the traditional contracting agreement. Moreover, fragmented procurement procedures remained a serious weakness in the area of public procurement. The World Bank Country Procurement assessment report (2000) cited in Anigbogu and Shwarka (2011) confirmed that 50% of projects in Nigeria are dead before their construction commence because they were designed to fail. The proposed strategic alternative procurement approach is developed by adopting the basis of the framework procurement of the North West Construction Hub (NWCH). The NWCH in the United Kingdom provides strategic framework procurement to its public clients, which helps to eliminate the repeated tendering process, and enable the client to access the contractor partner quickly and efficiently. Also, the pre-qualification and tendering process is being done once for the total duration of the four years framework (North West Construction Hub, 2012). However, this can be another strategy for eliminating the non-value adding waste in the Nigerian procurement system.

The NWCH framework has a threshold that helps in the proper procurement management of contractors and the supply chain, and the framework is made up of nine disciplines to cover

various consultancy services for all public bodies in the North West and UK region. The disciplines procured as indicated in OJEU notice 2010/S 188-287528 are:

- Project and programme management
- Regeneration/landscaping/artisan, architectural design
- Sustainability & environment
- Valuation and market analysis
- Mechanical/electrical/building services
- Quantity surveying
- Building surveying
- Multi discipline services

The framework threshold is made up of three lots namely: the high value framework, the medium value framework, and the low value framework. The high value frameworks consist of projects with a value of nine million pounds and above, and the contractors or suppliers that are listed under this framework have already been screened, qualified and approved by the NWCH to handle projects that is valued at nine million pounds and above. Similarly, the medium value frameworks consist of projects that start from five hundred thousand pounds to ten million pounds. And, the low value frameworks consist of projects that are valued at five hundred pounds and below. On the other hand, the Bureau of Public Procurement (2012) stated that the Nigerian MDAs also has a threshold for procurement, but may lack an organised and integrated supply chain management. Therefore, adopting a similar framework procurement strategy as the NWCH in the United Kingdom can help to improve the construction performance in Nigeria.

2. METHODOLOGY

This research work employed a deductive research strategy in which the reasoning starts with a theory then leads to a new hypothesis which is going to be confirmed or rejected as the result of the research (Snieider and Larner, 2009). Deductive approach begins with a theoretical model or perspective, and the reasoning is from the general to more specific (Pelissier, 2008). Thus, the conclusion follows logically from premises (available facts). According to Gulati (2009), a deductive approach is obtained by developing a hypothesis based on existing theory, and then designs a research strategy to test the hypothesis. Therefore, this research work tend to prove that the Nigerian current procurement system contributed to the failure and abandon of public construction projects which boils down to the proposal of a strategic alternative approach which will be more effective and efficient that the current Nigerian procurement system. A mixed method is used to collect and analyse data collected during this research. A survey is conducted on 38 participants through questionnaire and interview as a mean of collecting data for the research and the data collected is analysed using quantitative method of research. The quantitative research design involves statistical data, numbers, or figures, and quantifies and

analyse the data collected from a sample to the population of interest. It often involves little or no contacts with the people they are researching on.

3. FINDINGS AND DISCUSSION

From the survey that was conducted, 76% of respondents agreed that the current Nigerian public procurement system is less effective in achieving an improved construction performance while 24% argued otherwise as shown below.

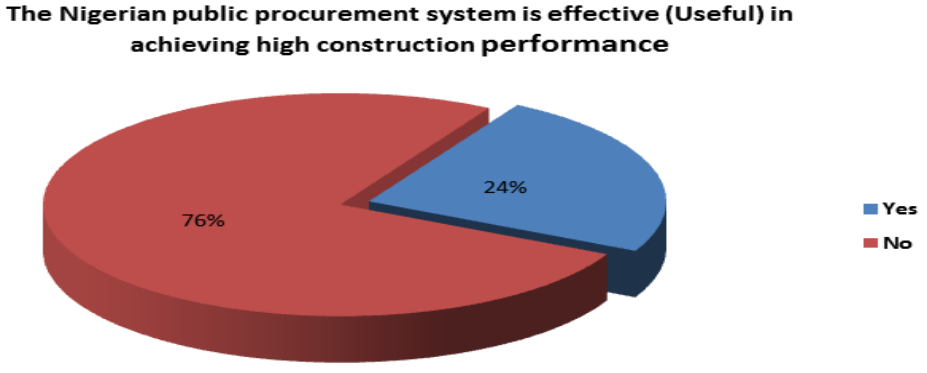

Figure-3. The effectiveness of the Nigerian procurement system

Table-3. Summary Response on the open question (qualitative data) from the survey.

Question	Variables	No of Response
The reasons that the Nigerian public procurement system is less effective in achieving high construction performance?	Poor supply chain integration and management.	
	Poor pre-tendering and tendering processes.	18
	Political interference and inference.	
	Corruption amongst procurement stakeholders, and use of non-qualified personnel.	10
	Non-flexibility of the public Procurement system, and low cost bidding.	
	Projects are not treated according to their peculiarity, and too many abandoned projects.	8
	Project objectives are not fully defined, and time and cost overrun.	
	Others that did not give response.	2

3.1. How Effective is the Nigerian Public Procurement System?

The high response from the research participants that argued that the Nigerian current procurement system is less effective was further investigated through the responses from the open question in the questionnaire form and from the interviews. The result from the investigation showed that 47% of respondents that argued that the Nigerian current construction system is less effective, said that the Nigerian current procurement system is less effective because of poor pre-tendering and tendering processes, and poor supply chain integration and management. 26% of respondents said that the Nigerian current procurement system is less effective because of the political inference, and corruption among the stakeholders. And, 21% of

respondents said that the Nigerian current procurement system is not flexible, projects are not treated according to their peculiarity, and the project objectives are not fully defined.

More so, further interview was carried out after conducting the questionnaires. From the results of the interview on six procurement practitioners from the Nigerian MDAs, they all confirmed that the traditional system of procurement is the most prevailing method of public procurement in Nigeria. Moreover, only two of the interviewed respondent out of the six knew that procurement starts from the pre-initiation stage to the post-construction stage, while the other four thought that procurement stops at the contractor selection stage (procurement stage stops before the construction on site begins). Four of them stated that the current Nigerian public procurement system is less effective to achieve improved construction performance while the remaining two argued otherwise. The two respondents that argued that the current Nigerian public procurement system is effective are High ranked procurement officials, and they said that every organisation has its "Modus Operandi" which they believed in and it works for them, and should be respected, like the pride of every other organisation, as the culture of that organisation.

However, the other four interviewed procurement practitioners stated that rate of abandoned projects, lawsuit, delay in project delivery, project above budget, and poor quality projects are all the evidence that the current Nigerian public procurement system is less effective. Furthermore, they believed that the proposed strategic approach will be more effective than the current practice and will help to solve those problems in the system if properly implemented. The Figure below showed that the proposed supply chain management strategy as an approach to procuring public projects will be very effective in achieving construction excellence. 74% of the respondents confirmed that the proposed approach will be "very effective" in delivering a successful projects within budget and on schedule. 4% of the respondents argued that the proposed strategic approach will be less effective. However, 50% of the respondent that argued that the Nigerian public procurement system is effective also agreed that the proposed approach will be very effective in delivering public projects with improved construction performance.

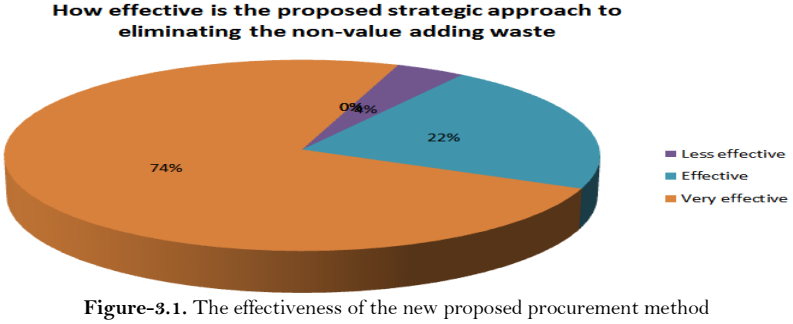

Figure-3.1. The effectiveness of the new proposed procurement method

3.2. How Useful Will the Proposed Strategic Approach Be in Eliminating Those Wastes?

The respondents that argued that the proposed strategic approach is less effective to deliver projects with improved construction performance, in an interview with one of the procurement

practitioner, said that the proposed strategic approach will not work effectively in the Nigerian public procurement environment due to political inference and interference. He went further to explain how corrupt the Nigerian public sector is which is in line with Søreide (2002). He said that high ranked public procurement officers will go ahead to employ their own contractor companies into the supply chain framework or contractors that will agree to pay to them special homage in monetary value irrespective of the contractor's capacity and quality of their experience in carrying out a successful project. He also complained that the management of the framework will be biased as the framework will be controlled by the corrupt politicians in power. These can be the barrier to the successful performance of the proposed strategic approach. However, from the diagram below, the survey analysis have shown that the proposed strategic approach when compared with the Nigerian current procurement system will be very useful in achieving improved construction performance.

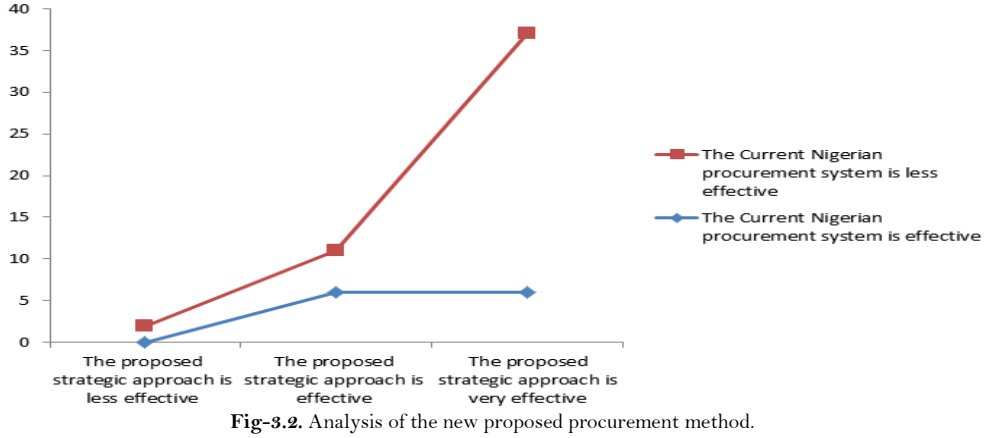

Fig-3.2. Analysis of the new proposed procurement method.

4. CONCLUSION AND RECOMMENDATION

From this study, public procurement is seen as an attractive and feasible instrument for innovative policy because it shapes the structure of the market and the way suppliers respond to the public clients, and determines the level of socio-economic development of the country. Also, this study revealed that the traditional system of procurement is the most prevailing method of procuring public construction projects in Nigeria, and the Nigerian Federal Ministry of Housing, Land and Urban Development needs to move away from the traditional system of procurement, to a more strategic system of procurement due to the poor construction procurement performance of the Nigerian construction industry.

Furthermore, the strategic supply chain management framework, when widely explored, has other benefits outside this research study such as the socio-economic development of local communities. The socio-economic development involves the encouragement and support of the local tier contractors, suppliers, and economy. However, the customer- MDAs have to make this development one of the criteria for entering the framework. With respect to this development,

any contractor that is selected to carry out a public construction project will use the local tier supplies in the local community where the construction site is located as part of the supply chain for delivering the project. Also, the use of apprenticeship and the transfer of skills from expertise to the local tier contractors is another way for the socio-economic development of local communities by making sure that the one-third of money spent on the project construction activities went into the local community where the construction project is allocated.The North West Construction Hub (NWCH), which is owned and operated by the Manchester city council United Kingdom, is a model for strategic supply chain framework procurement which is a similar procurement framework that is being recommended in this study. However, the detail design of the model for the strategic supply chain framework in the Nigerian public procurement was not part of this study, and so has not been done. The NWCH serves as a platform for procuring construction services to the public sector client in the Northwest region of England. The hub provides a robust delivering model and consultation with clients and contractors to be able to implement socio-economic development (NWCH, 2012). Thus, they promote localism. Moreover, the NWCH framework model was designed to suit the public sector clients and contractors at the North West region of England, and to work for them. However, adopting the exact framework model of the NWCH into the Nigerian procurement environment may be a disaster, and may not work effectively.

A lot of factors needs to consideration as reasons that may affect the adoption of the exact NWCH procurement framework into the Nigerian procurement system are as follows:

- Cultural difference with difference in the organisation structure. The way clients and contractors in the United Kingdom think is different from that of the contractors and the MDAs in Nigeria.
- The attitude of the public sector clients and the contractor in the United Kingdom towards construction is different from that in Nigeria.
- The government and economic policy of the North West region in the United Kingdom is different from that of Nigeria.

Therefore, a further study is needed to design the model for this strategic supply chain management framework on how it will be effectively used and managed within the Nigerian construction industry in the Nigerian procurement environment.

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