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Influence of Building Contractors' Performance on Construction Process in Nigeria: A Review of Emerging Literature

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Abstract
Building construction is a process that involves the interplay of many actors in the building industry. One of the actors that play a significant role, from inception to completion of a building project, is the building contractor. However, his performance is greatly influenced by some factors. Such factors include labour, building material, construction methods, equipment, site management and the likes. The study attempts to extensively review such factors that affect the building contractor's performance and productivity during the construction process. The findings of the extensive review of related literature are cross-sectional in nature. It was discovered that such factors varies from location to location and based on the settlement pattern, culture and social cohesion of people. The study concludes that, for a proper measurement of building contractor's performance to be achieved, all such factors should be incorporated and earnestly observed.
Keywords: Building Contractor, Building Performance Indicator, Construction Process, Contractor's Performance and Performance Measurement.

1.1 Introduction

Idrus Sodangi and Husin (2011) stated that shelter has been acknowledged as one of the basic needs of humanity. It was therefore not surprising when the United Nations launched an aggressive campaign through the government of Nations on the need to provide shelter for all. Contractor's performance is critical to the success of any construction project as it is contractor who converts designs in to practical reality. Improved contractors performance leads to increased client satisfaction an improvement in the reputation of contractors and hence their competitiveness in the market (Levy, 1990 and Sidwell, 1984).

Many owners are becoming more aware of the fact that the lowest bid does not always result in the lowest cost. Several owners have been awarding contracts based on a financial bid as well as a technical bid. Various evaluation methods have been used to evaluate the technical bids. Ranking the contractors for the purpose of awarding contracts is a very important process and has obvious severe implications for the owner and contractor alike. When evaluating the contractor performance, owners often classify the contractor into different performance groups based on their historic performance.

Some of the relevant previous research on the issue includes that of Shen, Lu, Shen and Li (2003), who investigated the contractor's key competitiveness indicators. They developed a fuzzy decision framework for contractor selection. They presented a systematic procedure based on fuzzy set theory. The procedure was intended to evaluate the capability of a contractor to meet the owner's requirements in terms of cost, time and quality. Shapley value was the main concept used to determine the global value or relative importance of each criterion in accomplishing the overall objective of the decision-making process. However, no algorithm or validation techniques were proposed. While Hong (2004) developed a contractor performance prediction Model for the United Kingdom construction contractors. Ekambaram and Mohan (2000), focused on developing a model for contractor prequalification and bid evaluation in design/build projects.

Singh and Tiong (2006) studied the contractor selection criteria for the Singapore construction industry. Alarcon and Mourgues (2002) proposed a contractor selection system that incorporates the contractor's performance prediction. Waara and Brochner (2006) investigate Price and Non-price Criteria for Contractor Selection. Other research include that of Hatush and Skitmore 1997; Holt and Olomolaiye 1994; Invancevich, Lorenzi and Skinner (1997). According to Neely (1995), performance measurement is the set of metrics used to quantify both the efficiency and effectiveness of actions. While contractor performance has been the subject of much research, evidence suggests that there remains much need for further improvement (Egan, 1998). Alwi, Hampson and Mohammed (2002) examine study on contractor's unique feature in terms of manner in which he follows design specifications methods of delivery, administration and composition of team members.

Also, Dada (2003) studied the perceptions on measures of contracting/contractors' performance by taking a case study of Lagos State indigenous contractors. His result indicated that there are no significant differences in the assessments and ratings of the identified measures of contractor's performance. According to Assaf, Al- Hammad and Ubaid (1996), contractor's performance has long been defined in terms of Cost, Time, and Quality and each of these aspects has been the subject of most research. Other researchers have attempted to examine contractor's performance more comprehensively. Oyewobi and Ogunsemi (2010) stressed that the growth of construction industry in Nigeria in the past two decades indicates its success in greatly contributing to

the country's gross domestic product which was 1.72 in year 2007 (Federal Bureau for Statistics).

However, this research is the pioneer attempt at reviewing related literature on the factors that influence the contractor's performance in public sector organization. The contractor's performance is one of the most important elements in building project. Success and contractor's performance can be referred to embrace construction cost, time, quality and sustainable development. Ofori and Chan (2001) had pointed out that the major indicators of contractors performance is the client satisfaction, and poor contractors performance, is characterised by poor work quality; and low productivity has been common in construction industry.

Measuring performance for construction project is a complex issue. Every project is unique in terms of location, design specifications, delivery methods, administration, and participants (Alwi et al 2002). If the most important influencing factors in any contracting organization are identified, measures can then be taken to apply them in order to upgrade the contractor's performance (Ofori and Chan, 2001). The aim of this research is to critically review the existing literature on the factors that influence contractor's performance in Nigeria with a view to improving productivity and client's satisfaction, requirement in terms of value for money.

2. Review of Related Studies on Indicators of Building Contractor's Performance

This section of the paper critically highlights the existing body of knowledge on the factors influencing the performance of building contractors in the construction process. Efforts were made to evaluate, assess, refute, validate, extend and challenge the findings and conclusion of such studies so as to identify research gap worthy of investigation and to proffer suggestions for future research.

2.1 Measurement of Performance of Building Contractors

Time and cost factors have been identified as the most important factors responsible for poor performance of contractors in Nigeria (Elinwa and Joshua, 2001). Time and cost related claims associated with contractor's performance could generate dispute and poor performance. Disputes may arise from question relating to causal factors, contract interpretation and quantum of the claims. Poor performance clearly represents an area of leakage in the construction industry. In Nigeria, the problem of contractors is severe especially when one considers the present economic condition of the country. Gray and Flanagan (1989) concluded that subcontracting led to problems including unsatisfactory time and cost performance.

The highlights necessitate an examination of the problem of project performance. All these aforementioned signify poor performance by indigenous contractors. Rework in construction projects is referred to as the unnecessary effort of redoing a process or activity that was incorrectly implemented in the first instance. Rework can result from an array of factors such as errors, omissions, failure, changes, poor communication and poor coordination (Ekambaram, 2006) Rework could adversely affect the performance and productivity and ultimately the profit margins as well.

Rework equally contributes to time and cost overruns in projects (Oyewobi, Ibironke, Ganiyu and Ola-Awo, 2011). It is shown from previous studies (Karim and Nanszeky, 1999) that the success of any building project rest on contractor's performance, and poor contractor's performance is a problem to successful building project delivery. Based on the above discussion, there is a need to answer these questions: What are the existing body of knowledge that highlight the factors influencing performance of contractors in Nigeria? What is the most significant performance indicator of contractors in Nigeria based on the review of related literature?

What do the existing body of knowledge recommend on the ways of evaluating contractor's performance in executing contract projects?

Alwi (2003) conducted a research on the factors influencing contractor's productivity in Indonesia. He concluded that productivity in the construction industry in Indonesia is not only influenced by labour, but also by other factors such as equipment, materials, construction methods, and site management. His findings confirmed and validate to work of Ibironke, Oladinrin, Adeniyi and Eboreime (2013) as similar findings were recorded in their research on the trends in productivity improvement in the Nigeria construction industry. However, their findings could not be generalized as small sample was employed to analyze the generated data. Another critic of their research was that they based their study on quantitative means of generating and analyzing data. Alwi further revealed that some concepts such as Total Quality Management (TQM) and Total Quality Control (TQC) have been implemented to achieve better productivity.

He further stated that the World Bank's Report of 1984 in the book "The Construction Industry "concluded that due to the limited skills and resources on developing countries, a large amount of projects were won by foreign contractors. Alwi further stated that other problems identified in the report included equipment shortages, inefficiencies in using materials, imbalances in organisational structure, unfair competition, limited funds, planning uncertainties and a lack of human resource development. Alwi went ahead and buttressed the fact many of these problems are endemic within the Indonesian construction industry as asserted by Royat, (1994).

In his analysis on the factors influencing building contractor's performance in Indonesia, Alwi (2003)

further opined that the productivity problem in the Indonesian construction industry is not only influenced by construction's workers. However, most researchers and construction practices to date have primarily concentrated on workers' productivity. They solely depend on labourer's performance to increase construction productivity (Alwi, 1995).

In the words of Alwi (2003), recently, investigation conducted by Alwi et al. (2002) concluded that there was no concern over the high level of non value-adding activities within the Indonesian construction industry. The activities, known as waste, have been identified as major factors affecting construction productivity.

However, the findings of Alwi in this regard did not tally with the research outcome of other researchers in Nigeria like Mohammed and Isah (2012) as they discovered that delay is one of the major problems in Nigeria construction industry. They reported that delay lead to many negative effects such as disputes between clients and contractors, increased costs, loss of productivity and revenue, and termination of contract. They adopted survey method in conducting and generating data through questionnaire. They established that that improper planning, lack of communication, design errors and shortage of supply are rank high on the causes of delays in Nigeria construction industry.

Mohammed and Isah (2012) concluded that delays causes more harm than good in construction project, therefore action should be taking to avoid such delay in construction projects in order to improve the efficiency and effectiveness of the industry. Consequently, they recommended that adequate planning; coordination; and proper monitoring of the construction projects by an experience and qualify professionals should be encourage to reduce the impact of delays on construction projects.

Alwi (2003) further stated that at present, no accurate method has been developed to identify factors of non value-adding activities and to quantify the extent of the negative impact of non value-adding activities. Prevention of waste must begin the moment the client first decides to go ahead with the project. No practical and acceptable method has been agreed upon by all parties involved in construction projects to reduce waste levels. He further lamented that on some construction projects in Indonesia, the extent of non value-adding activities is significant throughout the entire construction process.

Measuring productivity for construction projects is a complex problem Okoye and Okolie (2014) stated that every project is unique in terms of design specifications, delivery methods, administration, and participants. If the most important influencing factors in any contracting organisation are identified, measures can then be taken to apply them in order to upgrade the contractors' performance. This assertion confirms the work of Ofori and Chan (2001) in their analysis on factors influencing development of construction Enterprises in Singapore.

2.2 Alwi's Assertion on Productivity in Indonesian Construction

According to Alwi (2003), productivity has been one of the main issues from the conception of the project. He submitted that many construction managers in Indonesia believed that the occurrence of waste might affect the productivity level. In his words, he revealed that since the last two decades, some researchers had investigated the sources of reducing construction productivity. The Business Roundtable construction industry cost effectiveness study in 1983 concluded that the primary causes for the decline of construction productivity directly or indirectly involved poor management practice.

Borcherding, Palmeter and Jansma (1986) as quoted by Alwi (2003) provide an interesting qualitative model to identify sources of reduced productivity in construction work. Alwi (2003) established that productivity loss on large complex construction projects is explained using five major categories of unproductive time: (1) waiting or idle, (2) travelling, (3) working slowly, (4) doing ineffective work, and (5) doing rework. He oblige that unproductive time is one of the most prevalent waste that occurs in the Indonesian construction industry as revealed by Kaming, Olomolaiye, Holt and Harris (1997).

The study proved that on average, craftsmen lose time because of internal delays, extra breaks, waiting and relaxation, lack of skill and supervision delay. Overall, they lose a total of 18% of working time per week due to one production problem or another. Similar studies conducted in the United States are consistent with the results. The average of non-productive work is only estimated to be 36% (Borcherding, et al, 1986) or to be 31.9% (Levy, 1990).

Kaming et al. (1997) also stated that the main craftsmen's productivity problems in Indonesia were identified as lack of material and followed by rework, absenteeism, interference, lack of tools and equipment break downs. The causes of the material unavailability problems were: on-site transportation, inadequate material storage, excessive paper-work requests and in adequate planning. The main causes of rework were found as design changes and poor instruction.

2.3 U.S Department of Energy (DOE) Strategic Measurement System

The figure below represents a model for measuring performance of contract in the U.S Department of Energy. Many variables were integrated to form the model.

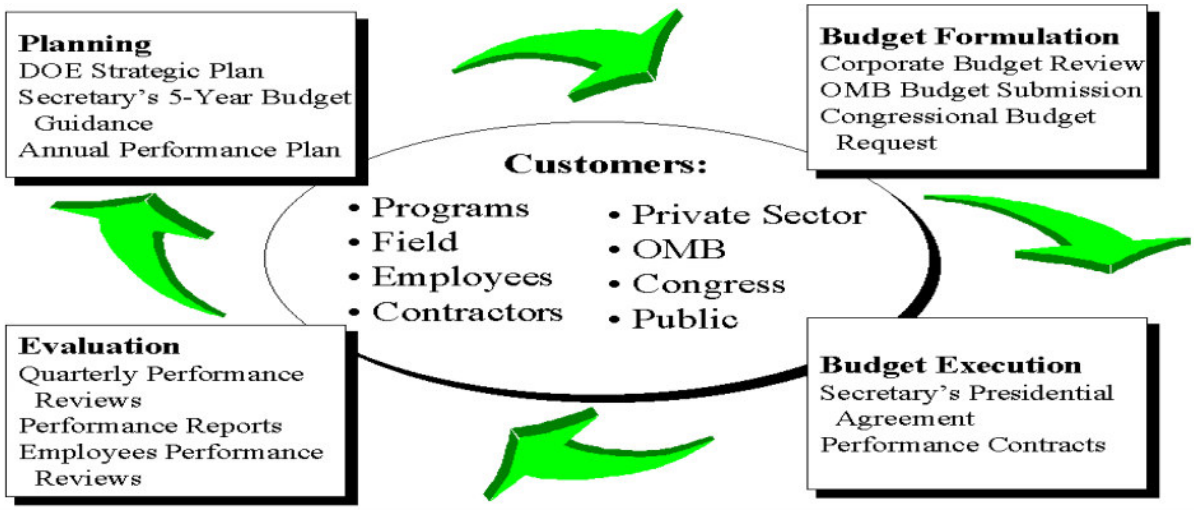

Figure 1: Department of Energy (DOE) Strategic Measurement System
U.S. Department of Energy (DOE) Acquisition Guide, Chapter 5

Based on the figure above, it could be seen that customer or client's assessment of a contract is a function of four indicators and they: Planning, Budget Formulation, Budget Execution and Evaluation. This model could partially be adopted in Nigeria context as there are difference in culture, social cohesion, community setting and awareness between developing countries like Nigeria and developed countries like United States. Therefore, the model has some shortcomings on its applicability in Nigerian context.

2.4 Performance-Based Incentive Process Model

The model below was equally developed by the U.S Department of Energy to measure the performance of contractors.

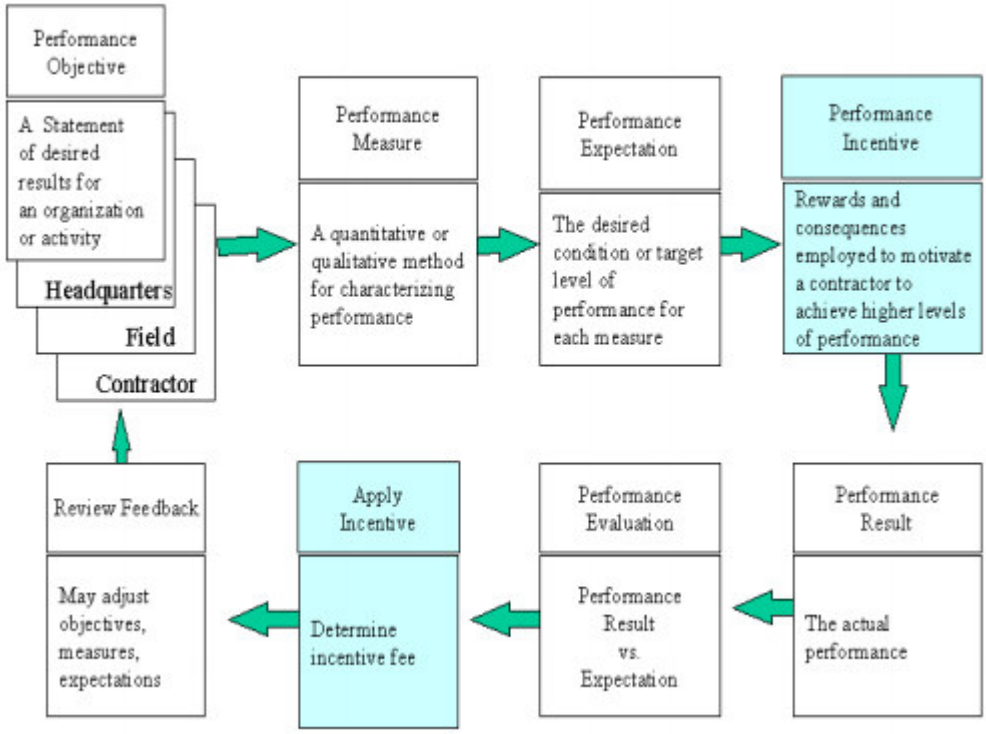

Figure 2: Performance-Based Incentive Process
Source: U.S. Department of Energy (DOE) Acquisition Guide, Chapter 5

The model in the figure above highlights the interplay of many variables when measuring the performance of contractor. The model gained popularity and wide acceptance in western world due to its uniqueness in terms of quantifying the performance of contractor in construction process. However, it receives a lot of critiques from

other scholars as it is self-cantered and lacks uniformity when it comes to implementation.
Many scholars believe that the model only exist in theory but lacks practical application due to many assumptions which could not be realized. Other measures of contractor's performances were not adequately captured in the model and such render it not well fitted in Nigerian context. However, the model could be modernized to capture many vital indices that would go along way in harmonizing its application in all settings including Nigeria in particular.
An attempt was made by Haruna Adamu, an M,Sc student in the Department of Building, Abubakar Tafawa Balewa, University to come up with a new model that will incorporate all the other essential and predictive variables. His Thesis further explored the un-captured factors and greatly influences the performance of building contractors in the construction process in northern Nigeria.

2.5 Responsibilities for Construction Measures
The table below articulates the major responsibilities and roles of construction manager.

Table 1: Responsibilities for Construction Measures

Responsibilities for Construction Measures (at the Project Level)	
Project Manager	▲ Typically leads the Project Team to establish specific project goals ▲ Ensures that both customer and corporate objectives are incorporated in the project goals ▲ Defines measures to track progress against project goals ▲ Establishes work processes for gathering, analyzing, and reporting project measures ▲ Leads the Project Team to identify opportunities for improvement and to implement action plans for positive change based on project measures results ▲ Reports project results to both customer and corporate resources
Project Engineer (Planner/ Scheduler)	▲ Integrates project measures work processes with the Project Controls system (see **CURT UP-210, "Construction Project Controls: Cost, Schedule, and Change Management"**) ▲ Collates and summarizes construction measures reports and forwards to the Project Manager
Construction Manager	▲ Manages work processes to gather and analyze construction-specific measurement data ▲ Identifies construction-specific opportunities for improvement ▲ Establishes and implements construction-specific improvement plans ▲ Reports measures and improvement plan status to the Project Engineer

Source: Construction Users Roundtable (2005)

The roles of project engineer and project manager were also presented. These roles vary from location to location. Most of these responsibilities are un-realisable in Nigeria as bureaucratic process is lacking in the country due to corruption practices. This is evident in the poor performance of building contractors in discharge of their duties.

2.6 Total Quality Improvement Cycle
The figure below highlights on how the total quality of a construction project could be achieved and maintained steadily for a reasonable number of years

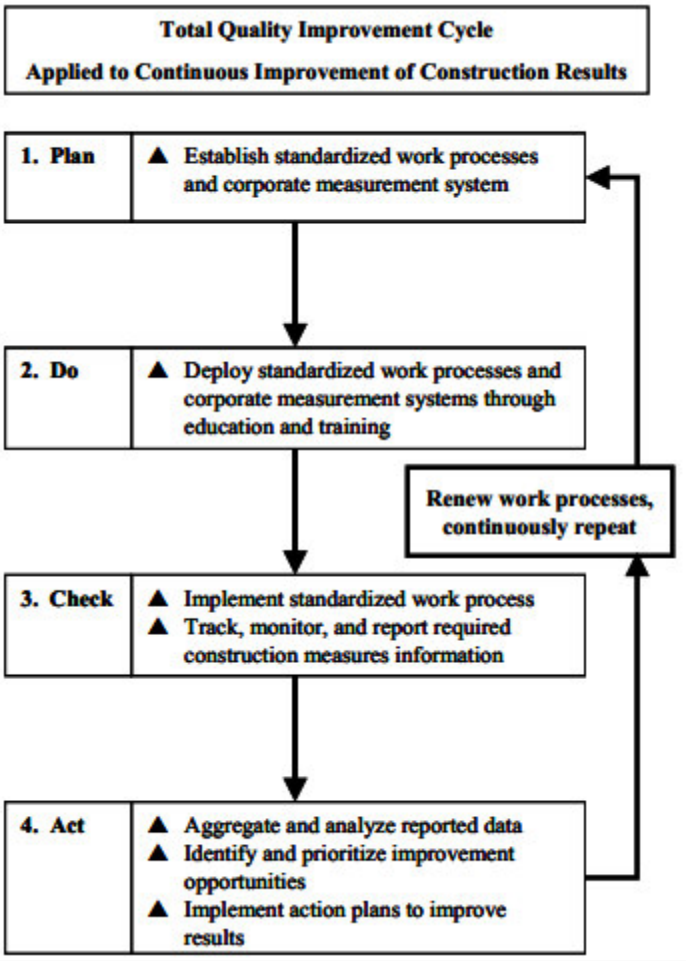

Figure 3: Total Quality Improvement Cycle Applied to Continuous Improvement of Construction Results Source: Construction Users Roundtable (2005),

The improvement cycle illustrated in the figure above is continuously repeated to drive improvements in construction work processes and ultimately construction results. The total quality improvement cycle (TQI) adopts standards and ensures that the standards are strictly followed and monitored. The TQI cycle analyze and report data so as to observe areas that need improvement in as much as the standards are helpful in achieving the contractor's performance.

The TQI cycle however, is not free from critique as it did not look at time, cost and resource prior to establishing such standards of measuring performance of building contractors. The TQI cycle therefore needs some second thought for its general application and adoption in measuring building contractor's productivity in the construction process as its employment in Nigeria might have a devastating effect on the clients and contractors as well owing to its unique nature.

2.7 Criteria for Measuring Project Performance Based on Past Studies

In a study conducted by Idrus, Sodangi and Husin (2011) on prioritizing project performance criteria within client perspective, they stated that successful performance in a construction project helps to deliver good products to the client. In their words, they opined that at present, there is no standard approach used by clients to evaluate project performance as project success carries different definitions to different people. They went ahead and established that some used the traditional project performance measures of cost, quality and time while others used additional non-traditional measures such as the environment, health and safety, level of technology and contractor planning.

Idrus, Sodangi and Husin (2011) further lamented that the dynamic nature of the construction industry makes the concept of project success to remain ambiguously defined in the Malaysian construction industry. They stress the fact that the objective of every project is success and project success is an off shoot of project performance. They further disclosed that identifying the performance measurement criteria as well as knowing the level of importance for each of the criterion is important to achieve the most favourable and desired outcome

for both clients and contractors. In the words of Idrus, Sodangi and Husin (2011), the results of their paper show that Quality of finished project, Construction cost and Construction time were the three most important criteria considered crucial by the respondents for evaluating project performance from current practice in Malaysia. Please refer to the table below as it shows list of criteria used by some researchers based on their perception of project performance evaluation.

Table 2: List of Criteria for Measuring Project Performance Based on Past Studies

	Previous study			
Criteria to measure project performance	Songer and Molenaar (1997)	Kumaraswamy and Thorpe (1996)	Lim and Mohammed (1999)	Chanand Chan (2004)
Cost/financial performance	√	√	√	√
Project duration	√	√	√	√
Quality	√	√	√	√
Client and project manager satisfaction	√		√	
User expectation and satisfaction	√		√	√
Friendliness of environment		√	√	√
Health and safety		√	√	√
Quality of workmanship	√	√		
Utility/ Functionality		√	√	
Meet specification	√			
Minimize construction aggravation	√			
Commercial profitable				√
Transfer of technology		√		
Speed of construction				√

Source: Idrus, Sodangi and Husin (2011)

The methodology adopted by Idrus, Sodangi and Husin (2011) could be criticized as ranking was based on the relative importance of the criteria as perceived by project performance decision makers working for clients' organizations within the Malaysian construction industry using their accumulated experience and judgment. This would not yield a positive result as data on project performance decision makers in Nigeria are scanty and are not enough to make generalization. Another critique on the paper is that data were analyzed using mean, variance, frequency and severity index analyses.

Their study failed to incorporate rigorous tools of analyzing data like Logistic Regression, Analysis of Variance (ANOVA), Spearman Rank Order, Pearson R Correlation Coefficient and the likes. Idrus, Sodangi and Husin (2011) further disclosed that base on the literature review; each researcher has different perception and opinion on the evaluation of project performance in the construction industry.

Table 3 below shows Analysis of Project Performance Criteria Using Severity Index Method according to Idrus, Sodangi and Husin (2011).

Table 3: Analysis of Project Performance Criteria Using Severity Index Method

Variable (frequency of response) description	1 Very low	2 low	3 Moderate	4 High	5 Very high	Total	Mean	Category (based on (Abd Madjid and McCaffer, 1998)	Severity index for ranking (%) (based on Abdulmohsen Al Hammad and Sadi Assaf, 1996)	Ranking
Construction cost	0	0	3	9	26	38	3.6053	Very high	90.1315790	2
Construction time	0	0	4	11	23	38	3.5000	Very high	87.5000000	3
Quality of finish project	0	0	0	14	24	38	3.6316	High	90.7894737	1
Occupational health and safety	0	0	10	21	7	38	2.9211	High	73.0263158	5
Level of technology	1	4	12	21	0	38	2.3947	High	59.8684211	11
Environment friendliness	0	2	13	19	4	38	2.6579	High	66.4473684	9
Contractor'sflexibility	0	2	12	21	3	38	2.6579	High	66.4473684	9
Labour dependency	0	3	7	19	9	38	2.8947	High	72.3684211	6
Quality of coordination by construction team	0	0	4	23	11	38	3.1842	Very high	79.6052632	4
Contractor's project management	0	2	10	21	5	38	2.7632	high	69.0789474	7
Contractor's capacity of manpower	0	0	13	23	2	38	2.7105	High	67.7631579	8
Total	1	13	88	202	114					
Mean	0.09091	1.18	8	18.36	10.3636					
Variance	0.09091	2.16	21.2	23.25	90.4545					

Source: Idrus, Sodangi and Husin (2011)

Their findings in the above table could not be applicable to Nigerian context as the sample used was too small to allow generalization. Their findings are foreign in nature and therefore needs some modification for its proper replication in a country like Nigeria. The table below presents summary level of importance for project

performance criteria according to Idrus, Sodangi and Husin (2011).

Table 4: Summary Level of Importance for Project Performance Criteria

Description	Severity index (%)	Ranking
Quality of finish project	90.79	1
Construction cost	90.14	2
Construction time	87.50	3
Occupational health and safety	73.03	4
Labour dependency	72.37	5
Contractor's project management	69.08	6
Quality of coordination by construction team	69.08	6
Contractor's capacity of manpower	67.76	8
Construction flexibility	66.45	9
Environment friendliness	66.45	9
Level of technology	59.87	11

Source: Idrus, Sodangi and Husin (2011)

As it could be seen in the table above, Idrus, Sodangi and Husin (2011) concluded that the quality of finished project, construction cost and construction time were the three most important criteria considered crucial by the respondents for evaluating project performance from current practice in Malaysia. However, the findings of a study conducted by Fagbenle (2011) on the factors influencing construction clients'/contractors' choice of subcontractors in Nigeria revealed different result. Therefore, a cursory look at these factors is imperative in order to come up with a model that is applicable in Nigeria setting.

2.8 Groups and Factors Influencing Contractors' Performance in Nigeria

Ibironke, Oladinrin, Adeniyi and Eboreime (2013) provided a list of causes of non-excusable delays on construction projects is presented below, as identified from the literature and edited by the authors. They stated that delays are one of the biggest problems faced by construction firms. Their literature review covered construction delay, types of delay, causes of delay and ways of minimising delay. In their words, they uncovered that the findings from the literature formed a strong basis for their particular study.

Ibironke, Oladinrin, Adeniyi and Eboreime (2013) conducted a questionnaire survey to solicit the causes, effects and methods of minimising delays with two groups of respondents: consultants and contractors. In their study, data were collected and analysed using a weighted mean method. In the words of Ibironke, Oladinrin, Adeniyi and Eboreime (2013), a total of 57 major factors that cause non-excusable delays were identified from the reviewed literature and were further classified into eight major groups. Their findings revealed 20 key factors that cause non-excusable delays. They concluded that the resultant effects of non-excusable delays are time overrun, cost overrun and disputes, among others. The table below presents the major factors influencing contractor's performance and cause non-excusable delays.

Table 5: Groups and Factors Influencing Contractors' Performance and Cause Non-Excusable Delays Nigeria

Groups	Factors That Cause Non-Excusable Delays
Material-related delays	1. Shortage of construction materials 2. Poor quality of construction materials 3. Poor procurement of construction materials 4. Imported construction materials 5. Escalation of material prices 6. Late delivery of materials 7. Unreliable suppliers
Labour-related delays	1. Slow mobilisation of labour 2. Shortage of skilled labour 3. Labour productivity 4. Labour supply 5. Absenteeism 6. Strike 7. Low motivation and morale
Contractor-related delays	1. Inadequate contractor experience 2. Inappropriate construction methods 3. Inaccurate time estimates 4. Inaccurate cost estimates 5. Poor site management and supervision 6. Improper project planning and scheduling 7. Incompetent project teams 8. Unreliable subcontractors 9. Obsolete technology
Client-related delays	1. Slow decision making by client 2. Lack of client experience in construction 3. Change orders 4. Client interference 5. Lack of a capable representative 6. Lack of communication and coordination 7. Improper project feasibility study
Consultant related delays	1. Inadequate consultant experience 2. Poor design and delays in design 3. Inadequate project management assistance 4. Slow responses and poor inspections 5. Incomplete drawing/detail design 6. Inaccurate site investigation
External related delays	1. Unforeseen ground conditions 2. Unexpected geological conditions 3. Inflation/Price fluctuations 4. Slow site clearance 5. Problems with neighbours 6. Weather conditions 7. Conflict, war and public enemies

Source: Ibironke, Oladinrin, Adeniyi and Eboreime (2013)

The findings of Ibironke, Oladinrin, Adeniyi and Eboreime (2013) could be extended as they focused their attention on non-excusable delay as a factor that influences the performance of building contractors in the construction process.

3. Alwi's Conceptual Model of Influence Variables

In the words of Alwi (2003), the construction process was influenced by several issues that could be grouped into three different factors (1) characteristics of contractors; (2) inadequate waste management strategy; and (3) organisation's focus and each factor is related to one another. However, his assertion has some setback as he only looked at Indonesia as a case study as it could be seen in figure 4 below.

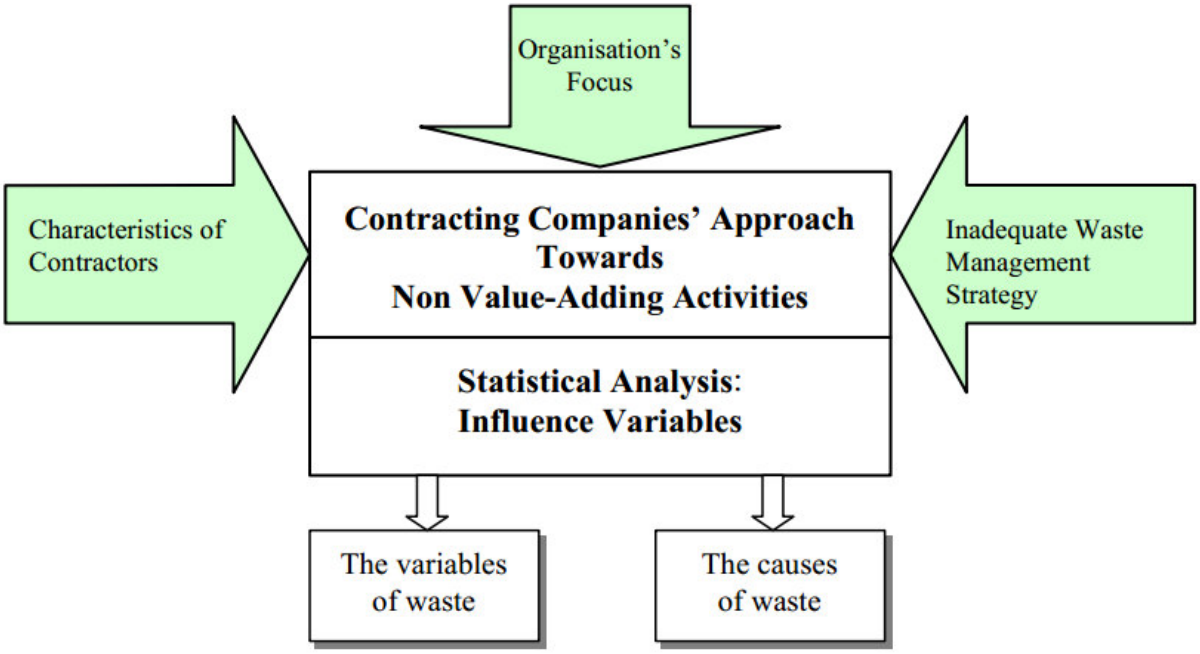

Figure 4: Alwi's Conceptual Model of Influence Variables
Source: Alwi (2003)

Alwi (2003) developed a conceptual model of the key factors and alternatives solution are provided to assist construction managers to achieve better construction performance by providing them with information on which factors they need to focus. Other issues that influence the building contractor's performance were skipped in the model. They include amongst other: Inadequate contractor experience, in accurate time estimates, improper project planning and scheduling, obsolete technology and incompetent project teams.

Other factors that affect the building contractor's performance that were not captured in the Alwi's model include: Poor site management and supervision, unreliable subcontractors, inappropriate construction methods and inaccurate cost estimates as rightly stated by Ibironke, Oladinrin, Adeniyi and Eboreime (2013).

4. Conclusion

Based on the findings of review of related studies, it is sufficed to state that there are no acceptable factors that influenced the performance of building contractors in the construction process. It varies from location to location vis-a-vis the regulation governing the monitoring of performance of building contractor in country. Among the factors that greatly influence the productivity of a building contractor include: quality of finished project, construction cost and construction time. These were the three most important criteria considered crucial for evaluating project performance from current practice as established by Idrus, Sodangi and Husin (2011).

However, other indicators of building contractor's performance equally play a significant role some instance. The study, therefore, recommend the recognition and inclusion of all these variables when measuring the performance and productivity of a building contractor in the construction process. Opportunity for further research lies in the fact that greater sample of respondents and rigorous tools of analysis of data be employed to validate and confirm the findings of the previous studies. Replication of similar studies is imperative to ensure the reliability of the outcome of past studies on the factors influencing the performance of building contractors in the construction process.

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