Stakeholders Awareness of Construction Claims Management Models in Nigerian Construction Industry

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Abstract

Almost all construction disputes are products of inefficient management of construction claims. Several instruments have been developed in studies conducted in many countries of the World for the amelioration of this problem that is prominent at the execution phase of the construction projects. However, the achievement of dispute free construction process in the construction industry in Nigeria is still a mirage. Therefore, this study assessed the level of awareness and utilization of these instruments as well as the reasons for the present level of usage of these instruments. These objectives were achieved through a survey conducted on stakeholders engaged in building projects executed in Ondo State, Nigeria for a period of nine years. Data collected were analysed using percentile, mean score and Kruskal-Wallis K-test. Among the three groups, consultants had the highest level of awareness and were best at using the instruments for managing construction claims. Furthermore, the stakeholders were aware of four out of the eleven identified instruments whereas only two were used by them. In total, 42% of the participants opined that the main reason for low level of usage of the instruments is that, it is not convenient to use the instruments whereas 31% of them agreed that the instruments will not yield the expected results. The implication of this is that the much expected amicable settlement of construction claims dispute is still unattainable; due to inability of the stakeholders to apply the methodologies that can enable them achieve it. The study recommended that adequate sensitisation should be carried out by the professional bodies and the government agencies on the importance of usage of the frameworks, so as to ameliorate the problem of disputed construction claims.

Keywords: Construction claims, Instruments, Level of awareness, Level of usage, Model

INTRODUCTION

Contractual claims are integral and an important feature of construction project's life (Awad-Saad, 2017). Claims are ineluctable in construction projects because it usually has long duration, various uncertainties and complex relationships among the participants. Therefore, the solution to this generic problem is effective management of construction claims. Bakhary, Adnan, Ibrahim and Ismail (2013) supported this observation by stating that the concept of a construction claim is not new, but what has been lacking is the methodology that can help construction claims manager in assessing the level of their construction claims process. The Nigerian Construction Industry is plague with disputes emanating from improper claims management.

Tan and Anumba (2010) opined that many of these disputes are due to the ill-intentions of the contractor who tendered for the project with a low bid but had planned to make up for the loss of profit through the submission of a series of well managed claims or the overzealous rejection of claims by the employer. Tan and Anumba (2010) further stated that for claims administration to be effective in the construction industry, an overall comprehensive step-by-step procedure for tracking and managing the claims submitted by contractors needs to be followed. Bakhary *et al.* (2013) therefore stressed the need for a structured instrument for managing construction

claims. The Egan (1998) report advocated the development of management - measuring business instruments that should help in the assessment of construction organizations' capabilities as one of the means toward modernizing business process of the companies in the construction industry. In response to this recommendation several instruments (frameworks/models) have been developed for construction claims management. Despite the development of these instruments, management of construction claims still end up in disputes which in most cases lead to suspension of works or in some cases project abandonment.

In Nigeria, several research works have been carried out on the nature, causes, magnitude and effects of construction claims. Among these studies were Kehinde and Aiyetan (2002), who studied the nature of contractual claims in building contracts in Nigeria; Aibinu and Jagboro (2002), who assessed the effects of delays on project delivery in Nigerian construction industry; Aibinu and Odeyinka (2006) worked on construction delays and their causative factors in Nigeria; Ameh *et al*. (2010), who studied significant factors causing cost overruns in telecommunication projects in Nigeria; and Oladapo (2007), who performed a quantitative assessment of the cost and time impacts of variation orders on construction projects in Nigeria. Although a considerable number of researches have been conducted in the aforementioned areas, no study is known to have attempted to address the stakeholders' awareness of construction claims management models. Construction stakeholders' importance in the construction industry cannot be overemphasised as they form the integral Four-Ms of construction which is management (Awad-Saad, 2017).

It should also be noted that claims administration success is dependent on the type of management process it receives while it is being processed. Hence, the need to have the research on the awareness of these stakeholders whom are the decision makers in any claims administration process. It may be argued that such research has been performed in other countries; however, because of the differences in business cultures from one geographical location to another, there is a need to fill this knowledge gap. Therefore, the study is focusing on the stakeholders' level of awareness of the existing models for managing construction claims.

Existing Construction Claims Management Frameworks/Models

In spite of the various frameworks developed for the management of construction claims, effective claims management is still unachievable in the construction industry. In view of this, there is need to appraise critically the existing framework/models for managing construction claims as enumerated in this section:

Construction Contractors' Claim Process Framework

Veshosky (1998) observed that the construction industry is widely perceived as being slow to innovation and has trailed the manufacturing industry in process innovation. Garvin (1991) asserted that a business process measurement is far superior to a performance based measurement. Kululanga *et al* (2001) supported this assertion by stating that the former reveals the reasons why problems exist and can provide construction managers with potential solutions to address the root causes of the underperformance. The latter merely highlights the problems without giving hints to the root causes of underperformance. As a of result this affirmation, Kululanga *et al* (2001) carried out a study in Malawi and used contingency theory to develop a construction contractors' claim process framework. In developing this framework, the concept of capturing "practice" and "awareness" as principal elements for addressing improvement was applied. The former involves the "understanding" of an issue that prompts

an organization to take an action, while the latter simply relates to "behaviour" or what an organization does in addressing improvement. The developed "behaviour" and "awareness" specific statement indicator is an attempt to measure six construction claims process and link the indicators to scores. The claim processes addressed includes; identification, notification, examination, documentation, presentation and negotiation. Total quality management was applied at every stage in the process to prevent loss of time and cost increase. This framework did not address evaluation process which is a link between claim presentations and claim negotiation process. The main gap in this study is that it addressed only the issues that bear on the contractor while client's input into settlement of construction claims was not consider.

Claims Administration Model

Abdul-Malake *et al.* (2002) observed that to enhance the chances of success, contractors submitting claims must closely follow the steps stipulated in the contract conditions. The researchers' further explained that the contractor must provide a breakdown of alleged additional cost and time and that project owner needs to follow an overall comprehensive step-by-step procedure for tracking and managing the claims submitted by the contractors. The study concluded that there is a need for an overall step-by-step procedure for claims analysis administration in order to achieve proper resolutions and for the prevention of claim from developing into disputes. This model addressed evaluation, but it did not address negotiation which is an important sub-process in construction claims management. This framework was based on (FIDIC 1992) form of contract; it is purely for civil and heavy engineering works including oil exploration contracts. This implies that the framework cannot be used to manage claims in contract where other form of contract is use. The framework did not envisage an amicable settlement of construction claims because it suggested litigation as a solution to disputed claims.

Contractor's Opportunistic Bidding Behaviour Model (OBBM)

Tan *et al.* (2008) asserted that claims strategy is used when there are expectations for potential changes in the design or uncertainties existing in the project output which may lead to claims in the future. Mohamed, Khoury and Hafez (2011) asserted that opportunistic bidding behaviour within potential claims recovery can be initiated during bidding based on extensive revision of the bid documents with tracing mistakes, ambiguities, expecting employer's caused delays, noting contradictions and looking for variations to make up the scarified bid profit through what can be gained under potential claims. As a result of this assertion, Mohamed *et al* (2011) developed contractors' opportunistic bidding behaviour model which is an analytical decision model. This model was based on three common practiced initiation of contractor's OBB which are potential changes; employer's caused delays, and disputes. This analytical model for OBB starts by using the expectation tree to anticipate the potential OBB on claiming situation. A decision tree was used to represent the expected decisions graphically and the values of their possible outcome along with the framework flow chart for the quantitative evaluation. This was based on rational and logical expectation experienced for the possible occurrence of the events. The solution algorithm of the tree structure was based on the roll-forward technique to determine an output value for each branch in the decision tree and the roll-back technique to help contractor select the optimal policy within the decision tree. The study concluded that the developed decision tree was expected to represent the chronology of the expected events and the state of information at each decision with the assumption of OBB flow chart in two cases or branches.

Case I (OBB decision)
The solution of OBB expectation during bidding was obtained by assuming that there are initiations for potential claims occurrence, if the contractor is able to manage the claim success, it is expected "a negotiation offer within a successful claim profit" in the claim during project phases.

Case II (Contingency Assessment)
This is a case of "no claims success" or the contractor "cannot support his claims success" is expected OBB is not consider for profit reduction and the contractor should assess, the proper risk contingency in bid mark up for the potential damages that will be incurred during project operations.

This model did not address evaluation sub-process; it covers six out of the seven sub-processes in construction claims management. It considered negotiation and payment of ratio of the contractor's claims based on complex mathematical analysis which can lead to dispute if the contractor is not satisfied with the amount arrived at through the analysis. The possibility of contractor claims depends on his ability to support claims successfully and any failure may lead to dispute or project abandonment, because the contractor has pre-determined to make claims at tender stage of the contract. The client and the contractor may need to employ an expert before they can understand the mathematical analysis; this is an additional cost to both parties.

Framework for Contractor's Ability to Support and Manage Claims (q2)
Mohamed *et al.,* (2011) observed that contractor's management of the claims must begin before the start of the construction and continue through the close-out of the contract. Chester and Hendrickson (2005) asserted that mismanagement of claims results in multiple problems that affect the schedule and leading to damages to multiple parties. Mohamed *et al.,* (2011) developed framework for contractor's ability to support and manage claims (q_2) based on Kululanga *et al.,* (2001), claim process-measuring framework in multiple level variables to manage claims. The study pointed out that the contractor can examine his ability to support each claim defence to make the recovery feasible under the contract terms, in each bid case, if he is able to manage the six stages of claims identification; claims notification; claims examination; claims documentation; claims presentation and claims negotiation.

The study further stated that to quantify the chance of the contractor's ability to support claim success (q_2), a numerical scale of the claim processing measuring framework must be used. This was classified into five levels of numerical scale ranging from (0.0:1.0) to measure the effectiveness of the contractor's organization capability to claim management. The study concluded that each level gives a quantitative awareness of a claim management which contractors can employ as a measuring tool for the potential chance of claim success (q_2). A critical look of this framework indicates that it is an improvement on the previous framework modelled by Kululanga *et al* (2001) because of the quantitative analysis of the contractors' level of awareness. However, 'evaluation' which is the sub-process between claim presentation and negotiation was not address by this framework; it covers mainly contractor's related sub-processes. The client's input in resolution of construction claim was not consider by this framework.

Framework for Assessment of Negotiating Offer Ratio (R) to Claim Profit
Mohamed *et al.,* (2011) selected the six factors upon experience and careful review of claims negotiation/settlement to suit all types of different contract nature such as (cost plus, unit price

and lump sum) and project delivery approach – as such as (negotiating, design-build and turnkey). Mohammed *et al.,* (2011) explained further that though, the concept of bid price reduction is often considered in a low-bid project with a lump sum contract, but can be applied and extended to other contract types and project delivery approaches.

For simplicity, each factor is given an equal weight of 0.15 except the last factor which was assessed in a higher weight of 0.25 of (r) score. Mohammed *et al.,* (2011) also distributed a range of six qualitative levels from (A to F) on each of the assessed weight of each factor to produce a ranged score for the expressed (r). Finally, based on each contractor's past records in claims negotiation settlement, the relationship between (r) and (F_1/C%) in order to determine within a set of possible claim profit compensation values (rf). The suggestion by the framework that the amount claim submitted by the contractor should be negotiated using a pre-determined ratio may not be acceptable to all parties involved. Therefore, settlement of claims may result in dispute which may also lead to costly litigation.

The Use of Multi Agent Systems for Construction Claims Negotiation (MASCOT)

Zack (1994) asserted that inefficiencies in negotiation make claims resolution much more difficult, adversarial and may delay resolution or in the worst case lead to expensive litigation. Ren *et al* (2001) observed that negotiation involves many human factors in addition to the pure technical issues and that very few construction participants have adequate negotiation expertise. The study stated further that most claim negotiations are conducted in a heuristic way which usually resulted in unnecessary concession and stubborn mistakes that make the negotiations harder and inefficient. Improvement in the efficiency of negotiation was emphasized as the best mean of resolving claims rather than the problem of documentation which many researchers stressed. Based on this observation, a technology that has the potential to improve the efficiency and effectiveness of claim negotiation involving the use of a multi-agent system for construction claims negotiation (MASCOT) was suggested (Ren *et al* 2001).

The multi-agent systems are networked systems composed of individual agents which can negotiate for their own benefits. Ugwu, Anumba, Newnham and Thorpe (1999) stated that the agents are characterized as autonomous, facilitating and filtering information, communication, learning and facilitating collaboration. Ren *et al* (2001) explained that the MASCOT model was developed based on a thorough analysis of the characteristics of claims negotiation. An essential nature of the negotiation is that construction claims negotiation can be understood as a bounded self-interested negotiation. That is, the negotiation participants are initially self-motivated; their main interest is to maximize their own benefits. The self-interest competition is bounded by the willingness of not breaking the negotiation, because that may force them to give up the claim or go into arbitration or litigation that they can hardly be afforded. This is the starting point where the MASCOT is built.

This framework addressed only one process (negotiation) out of the seven sub-processes involved in construction claim management process. There are two stages in negotiation in construction claims management namely entitlement of claims and compensation amount claims, this framework did not encompass entitlement of claims. The idea of bringing independent agents is an unnecessary additional cost to the client and contractor and in a developing country like Nigeria where bribery and corruption thrive, it is dangerous for the clients and contractors to entrust the negotiation of claims to independent agents.

In addition, if the independent agent is not given absolute right to negotiate on behalf of the client, the client may need to request for an advice from his consultants before he takes a final

decision on the negotiation. In such a situation the employment of the independent agents is a financial waste to the client vice versa the contractor. Finally, this framework discourages harmonious relationship among the construction team, because they were not involved in the negotiation.

General Negotiation Framework

Fidan *et al.* (2010)) opined that negotiation helps to sustain amicable relationship between parties and avoid the risk of extra cost and unfavourable outcome. Fidan *et al* (2010) developed an ontology relating risk and vulnerability with project cost overrun ratio. According to Fidan *et al* (2010) the ontology forms the basis of communication language in multi agent system (MAS) that helps agents to share risk and cost related information with each other. Fidan *et al* (2010) confirmed that the risk emerged throughout the project and that sources of vulnerability and contract conditions form the basis of the negotiation in addition to the expectations and attitudes of the parties (agents in MAS). The researchers proposed argumentation based approach to negotiation as a key strategy to enhance the performance multi agents systems.
Fidan *et al (*2010) explained further that integration of argumentation theory is acceptable and it is accepted to add value to automated negotiation applications by supporting the exchange of additional information about the proposal. That is, argument helps the agents to influence each other's benefits according to (Jennings, Faratin, Lumuscio, Partsons and Sierria 2001, Rahawan, Sonnenberg and Dignum 2004 and Amgoud, Dimopolous and Morraitis 2007). Fidan *et al* (2010) recommended that in using this approach in construction claims management agents should be appointed to act as case administrator who will be responsible for analysis of contract clauses and determine the responsibility of project participants. The Fidan *et al* (2010) concluded that the negotiation process includes the evaluation and generation of proposals/arguments which usually result in either agreement through concessions or conflict. This framework was based on (FIDIC) form of contract which is purely for civil and heavy engineering works including oil exploration contracts. This implies that the framework cannot be used to manage claims in contract where other form of contract is use. In addition, if the independent agent is not given absolute right to negotiate on behalf of the client, the client may need to request for an advice from his consultants before he takes a final decision on the negotiation. In such a situation the employment of the independent agents is a financial waste to the client vice versa the contractor. This framework discourages harmonious relationship among the construction team, because they were not involved in the negotiation. The study concluded that the argument may end in concession or conflict; this means that amicable settlement of construction claim is not the absolute aim of the framework.

Framework of Systems for Managing Employer's Construction Claims

Chovichien and Tochaiwat (2006) stated that the objective of the framework developed in this research is to describe how an information system can help a project employer in managing claims arising in construction project and its implementation. Chovichien and Tochaiwat (2006) used transactions from all parties involved in the construction project as the input into the systems that is consists of several sub-systems. The sub-systems include, claim transaction processing system (TPS), claim management information system (MIS), decision support system (DSS), expert system (ES) and executive support system (ESS). Chovichien and Tochaiwat (2006) developed this framework in Thai where construction claims management is being handled by "employment supervisory committee" which consists of a chairman and at least two qualified persons. The committee has power to review the reports from the contractor and construction supervisor; perform field supervision and variation order and approve interim payment.

According to Chovichien and Tochaiwat (2006) the data for the framework may be keyed into system by project staff or downloaded via internet network. The data were then processed and recorded in several forms of reports or stored in data storages and it can be retrieved by the claim manager when required from the database. The claim manager can make decision or solve some specific problems with the system. Chovichien and Tochaiwat (2006) concluded that the problems which this framework include identification, claim analysis and decision to file a claim and that systems framework can be used in developing claim management systems which will enhance the employers' claim management efficiencies.

The framework can be used for claim identification, analysis and decision to file claim by the claim manager, this means that it is required by the employer for decision making on whether to submit a claim or otherwise. That information collected through this framework can only be used in developing claims management framework that will enhance the employers' claim management efficiencies, this shows that the framework is a means to an end but not the end of construction claims management problems. The engagement of employment supervisory committee as suggested by the framework cannot be used in Nigeria because the form of contract applicable does not allow such practice.

Analytical Model for Analyzing Claims and Opportunistic Bidding

Ho and Liu (2004) opined that the objective of developing the model is to help owners and contractors understand the underlying economic mechanism of a claim so that they can develop effective project procurement strategies and claim administration programmes or policies. Ho and Liu (2004) presented the analytical framework based dynamic on game theory for analysing the claims and opportunistic bidding in which players act sequentially. The researchers represent a dynamic game by treelike structure called "extensive form" and used 'market entry' to demonstrate the concepts of a game analysis. Ho and Liu (2004) assumed that the players of the game are risk neutral, that is players will try to maximize their payoffs and their utility function is: $u(x)$ $5x$, where x is the players monetary payoffs. The researchers also used sub-game-perfect Nash equilibrium that does not rely on the players to carry out an incredible threat.

Based on the researchers' own experiences, the researchers developed a model for analysing opportunistic bidding construction claims (named claims decision model). Ho and Liu (2004) confirmed that the payoff has a tie between negotiate and not to negotiate, but a rational decision maker should choose not negotiate, since negotiation will take extra efforts. The researchers concluded that the equilibrium solutions can be solved backward recursively through the aid of the extensive tree where the negation is one-time. That is, no counteroffer from the builder. The conditions for the builder to claim or not would also obtained.

Ho and Liu (2004) used three cases to demonstrate how to apply the model: In Case I, the solution of the bidding and claiming game was obtained by assuming that there is no counteroffer in a claim negotiation. In Case II, the ''no counteroffer'' assumption is relaxed and the equilibrium solution is further refined. In Case III, the game and its solution are generalized. In all the three cases the researchers made assumptions and extensive form of claiming and bidding game in the form of mathematical functions and equations. The researchers proffer solutions and illustrations in all the three cases with a case study without numerical values for all the mathematical notations.

This is a complex analytical model with a lot of assumptions that may be difficult to use and understand by the clients and contractors in real practical life in Nigeria. To use this model, the construction participants, need to employ experts for the interpretation and application of the

model which is going to be an additional cost and to accomplish the tasks involved in this model would consume a lot of time. This framework addressed only one sub-process (negotiation) out of the seven sub-processes involved in construction claim management practices and it ignores other sub-processes that need to be accomplished before negotiation.

Analysing Weather-Related Construction Claims

Moselhi and El-Rayes (2002) observed that construction operations are sensitive to weather conditions such as temperature, humidity, wind, snow and/or rainfall. The researchers also observed that the degree of sensitivity to these parameters varies significantly from one construction operation to another because of the specific nature of these operations and the methods used in their execution. Moselhi and El-Rayes (2002) confirmed that previous studies (Grimm and Wagner 1974, Sanders and Thamos 1991) cited in Moselhi and El-Rayes (2002) have shown that adverse weather has significant implication on the productivity of many construction tasks and accordingly is considered as one of the main factors causing delays and cost overruns. The researchers confirmed that when exceptional adverse weather causes delays and cost overruns, the contractors often submit claims requesting for extension of time and/or compensation for extra cost.

Moselhi and El-Rayes (2002) also affirmed that the American Institute of Architects document A201 outlines the general conditions of the contract and includes special clauses that regulate the basis and conditions for submitting weather-related claims That the clauses specifically stipulate that weather-related claims should be supported by appropriate documentation, substantiating that the weather conditions during construction were abnormal and unexpected and that the encountered abnormal weather conditions had an adverse effect on the construction. The researchers confirmed that the first type of documentation can readily be provided by comparing actual weather conditions experienced on site to normal weather conditions as per historical weather recorded at the closest weather station to the site. But the second type of documentation is more challenging task, because the claimant must give the number of days that the abnormal weather conditions contribute to the experienced construction delays.

Moselhi and El-Rayes (2002) explained further that an objective analysis of weather-related construction claims requires the quantification of the impact of weather conditions on the construction schedule and the consequent delays. The researchers concluded that this impact can be identified by analysing the “as-planned”, “as built”, “Ideal” and “as-possible”. Based on the study developed decision support system named “weather” help to present a quantitative and effective procedure for the analysis of productivity, project schedule and appropriate associated delays in some building project activities. Moselhi and El-Rayes (2002) used some mathematical equations in the analysis and ran the system on Microsoft Windows NT and 2000 that provides user-friendly interface to facilitate its use and set about 200 rules of thumb which were acquired from experts and named If-Then Rules to expand “weather” and use it for highway activities. The study validated “weather” by comparing the result from it with those produced based on Ministry of Transport of Ontario Canada data on productive days for building project and example of liquidated damages claim by client in 1996 on highway project. The validation analysis indicates close agreement between the results obtained using the two methods with an average difference of less than 5%.

The “weather” system is not flexible in use, because it can only be used for weather-related claims; it was developed for delay claim alone. It is purely a computer expert’s application procedure which may not be easily used by the client consultants and contractor’s professional

staff; it may require the employment of a specialist to implement it at an extra cost to the client or contractor. The "weather" used the rules of thumb in its analysis which make the result less accurate and the use of weather records from the nearest station to the site may not provide accurate result for the actual weather conditions on the site because there could be variation with 300 metres radius.

Framework on Analysis of Claims

Nguyen (2009) opined that in Thailand a successful construction claim generally consists of three major parts for the claimant: entitlement, cost and documentation sections. Nguyen (2009) explained that documentation and framework of claim should be maintained by a construction project and that in presenting a disputed claim to the party with whom you are contracting, it is vital to establish the other party's liability for the claim and refer to it as "entitlement". The researcher explained further that the amount of damages sought is referred to as "quantum" and that in framework on claim analysis the "entitlement analysis" includes objective review of the scheduling, plans, specifications, expert opinions, building codes and standards. Nguyen (2009) affirmed that the "quantum calculation" aspect demands an impartial analysis of the costs associated with the additional works which include home office overhead, job site overhead, material costs, labour costs and equipment costs.

According to Nguyen (2009) the "factual support for claim" includes contract provisions on case-by-case basis which must support entitlement and quantum calculation while the "attached document" is related to specifications, drawings, clarifications/requests for information, schedule, job diaries and RFI change order logs. The "underlying facts" section must comprise brief summary of the related facts that support the claim while the "summary of claim" is to briefly describe the basis for the claim and the amounts sought. Nguyen (2009) confirmed that claims management success is based on "interdisciplinary method" involving project managers, engineers, lawyers and construction site managers in Thailand. The researcher concluded that the framework was for describing claimant activities and goals, framing them in a way that supports the claim reasoning.

Claims management process is in four sections in Thailand, this framework treated the three sections that contain the contractor's activities. This may be the reason for the conclusion by the study that the framework is for describing claimant activities and goals, framing them in a way that supports the claim reasoning. This means that the framework cannot be applied in settlement of construction claims entirely.

METHODOLOGY

The survey for this study was conducted in two stages, the first stage was the administration of well-structured questionnaire to clients, contractors and consultant architects and quantity surveyors that were engaged in public building projects executed for a period of nine years (from 2006 to 2014) in Ondo State, Nigeria. The choice of these consultants (Architects and Quantity Surveyors) was because of their active involvement in claims management on building construction projects. Aibinu (2007) referred to the Architects and Quantity Surveyors as the certifier of construction claims. The choice of contractors was based on the fact that they are always the initiators of construction claims while the clients are responsible for the payment of agreed construction claims. The year was limited the selected period because of the presence of adequate construction works before the economic recession experience set in across the Nation and in order to have a rich set of data. The population for the study was 323 respondents comprising of 53 clients and 168 contractors while the architects and quantity surveyors were 52 and 50 respectively. The population falls within manageable size and locations. Therefore,

census method was adopted so as eliminates sampling error and provides data on almost all the population components. A well-structured question was administered on the background information of the respondents and their level of awareness of the frameworks. A total of 197 questionnaires were returned well filled by the respondents which represented about 61% response rate and were used for the study. The second stage consist of the distribution of another questionnaire on the low level of usage of the instrument to selected 45 respondents that have over twenty years of experience among the initial population. The questionnaires were self-administered to the respondents. Data collected were analysed using percentile, mean item score and Kruskal Wallis K-test. Kruskal Wallis test was adopted for the analysis because of its wide usage and the notion that it is the strongest test that could be conducted to examine the difference in opinion, when dealing with non-parametric data that involved multiple respondent groups (that is three or more groups). About 53.3% of the respondents were corporate or registered members of their professional bodies while 19.8% and 8.7% were probationer and fellow of their professional bodies respectively. This implies that they are well educated, professionally qualified and competent to answer the questions and their opinion could be relied upon.

RESULTS

Level of Awareness of the Existing Instruments (Frameworks) for Managing Construction Claims

Table 1 shows that the three topmost instruments aware of by the clients are construction contractors' claim process framework, claims administration model and contractor's opportunity bidding behaviour model with mean values of 2.42, 2.41 and 2.16 respectively. The least instrument aware of by the client is analysing weather-related construction claims with a mean value of 1.00. In the contractor's opinion, the three upmost instruments aware of are contractor's claim process framework, contractor's opportunity bidding behaviour model and claims administration model with mean values of 2.44, 2.28 and 2.24 respectively while the least instrument aware of is general negotiation framework with a mean value of 1.04.

In the opinions of the consultants, the three uppermost instruments aware of are contractor's opportunity bidding behaviour model, contractors' claim process framework and claims administration model with mean values of 3.47, 3.32 and 3.31 respectively. The least instrument aware of is Framework for assessment of negotiating offer ratio (R) to claim profit with a mean value of 1.39. The table further shows that the overall opinion of the respondents is that the three topmost instrument aware of are contractors' claim process framework, claims administration model and contractor's opportunity bidding behaviour with men values of 2.73, 2.66 and 2.64 respectively. The least instrument the respondents are aware of is Framework for assessment of negotiating offer ratio (R) to claim profit with mean value of 1.25. This implies that respondents were aware of four (4) out of the eleven (11) identified instruments, considering there mean values that range from 2.08 to 2.73. Table 1 reveals that an asymptotic significance value of 0.327 is generated using Kruskal-Wallis K-test which is higher than 0.05. This implies that there is no significant difference in the responses of the groups for this aspect of the survey.

Level of Usage of the Existing Instruments (Frameworks) for Managing Construction Claims

The level of usage of the four instruments that the participants were aware of based on their mean values were considered in this section. From Table 2, the clients have used claims administration model mostly followed by contractors' claim process framework with mean

values of 2.61 and 2.52 respectively. The result also indicates that client ranked contractor's opportunistic bidding behaviour model (OBBM) and framework for contractor's ability to support and manage claims (q2) third and fourth with mean scores of 1.31 and 1.26 respectively.

On the other hand, the contractors and consultants rated claims administration model and contractors' claim process framework first and second respectively. Furthermore, the result shows that contractors and consultants ranked framework for contractor's ability to support and manage claims (q2) and contractor's opportunity bidding behaviour model (OBBM) third and fourth respectively. The general opinion of the respondents show that they have used claims administration model mostly followed by contractor's claim process framework with mean scores of 2.86 and 2.72 respectively. The result also shows that the respondents rated framework for contractor's ability to support and manage claims (q2) and contractor's opportunity bidding behaviour model (OBBM) third and fourth with mean values of 1.65 and 1.58 respectively. The consultants have used the four instruments mostly among the three groups considering their mean value of 2.81.

Table 1: Level of Awareness of the Existing Instruments (Frameworks) for Managing Construction Claims

Framework	Client		Contractor		Consultant		Overall	
	MIS	Rank	MIS	Rank	MIS	Rank	MIS	Rank
Average	*1.62*		*1.60*		*2.46*		*1.90*	
Construction contractors' claim process framework	2.42	1	2.44	1	3.32	2	2.73	1
Claims administration model	2.41	2	2.24	3	3.31	3	2.66	2
Contractor's opportunistic bidding behaviour model (OBBM)	2.16	3	2.28	2	3.47	1	2.64	3
Framework for contractor's ability to support and manage claims (q2)	2.06	5	2.01	4	2.16	7	2.08	4
Framework on analysis of claims	2.07	4	1.81	5	2.09	9	1.99	5
Analytical model for analysing claims and opportunistic bidding	1.08	9	1.08	9	2.85	4	1.67	6
General negotiation framework	1.13	7	1.04	11	2.33	6	1.50	7
Analysing weather-related construction claims	1.00	11	1.09	8	2.37	5	1.49	8
The use of multi agent systems for construction claims negotiation (MASCOT)	1.10	8	1.08	9	2.10	8	1.43	9
Framework of systems for managing employer's construction claims	1.36	6	1.14	7	1.64	10	1.38	10

Framework for assessment of negotiating offer ratio (R) to claim profit	1.01	10	1.34	6	1.39	11	1.25	11

For the level of usage of the frameworks, Kruskal-Wallis K-test generated an asymptotic value of 0.152 which is greater than 0.05. This indicates that there is no significant difference in the opinions of the respondents as regards level of usage of the frameworks. Therefore, it can be concluded that the three groups concur on this aspect of the study. This may be due to the experience of the respondents which is over twenty years. This may result in their agreement on the usage of the frameworks. It may also be due to readiness of all respondents to adopt innovations in their practices.

Table 2: Level of Usage of the Existing Instruments (Frameworks) for Managing Construction Claims

Framework	Client		Contractor		Consultant		Overall	
	MIS	Rank	MIS	Rank	MIS	Rank	MIS	Rank
Average	1.93		1.86		2.81		2.21	
Claims administration model	2.61	1	2.53	1	3.43	1	2.86	1
Construction contractors' claim process framework	2.52	2	2.41	2	3.22	2	2.72	2
Framework for contractor's ability to support and manage claims (q2)	1.26	4	1.26	3	2.41	3	1.65	3
Contractor's opportunistic bidding behaviour model (OBBM)	1.31	3	1.24	4	2.17	4	1.58	4

Reasons for Low Level of Usage of the Existing Instruments (Frameworks) for Managing Construction Claims

The selected respondents were asked to assess the reasons for the low level of usage of the existing instruments for managing construction claims. From the analysis about 42% of the respondents opined that it is not convenient to use the instruments whereas about 31% agreed that the use of the instruments may not yield the required results. On the other hand, about 11% of the respondents asserted that the method we are using is the best for claims management while about 9% of them affirmed that our organisation does not encourage the use of instruments. Finally, about 4% of the confirmed that the conditions of contract do not permit the use of the instruments while about 2% of them opined that government regulations do not permit the use of the instruments.

Table 3: Reasons for the Low Level of usage of the Existing Instruments (Frameworks) for Managing Construction Claims

Reason	**Frequency**	**Percentage**	**Rank**
It is not convenient to use the instruments.	19	42.22	1
The use of the instruments may not yield the required results.	14	31.11	2

The method we are using is the best for claims management.	5	11.12	3
Our organisation do not encourage the use of the instruments.	4	8.89	4
The conditions of contract do not permit the use of the instruments.	2	4.44	5
The government regulations do not permit the use the instruments.	1	2.22	6
Total	**45**	**100**	

DISCUSSION

Considering the eleven major identified instruments for managing construction claims, it could be deduced that consultants are most aware of structured instruments (frameworks) for managing construction claims among the three groups. The reason for this consultant's level of awareness may be due to their professional exposure and higher educational background than other groups. On a general view, the respondent's level of awareness of the frameworks is too low because they were aware of four out of the eleven instruments. This finding corroborates the assertion of Kululanga *et al*. (2001) which stated that the Malawian contractors were not aware of structured methodology for construction claims management by way of their practice on the framework.

On the other hand, consultants have the highest ability to use the frameworks among the three groups while the contractors have the lowest ability. This may be due to the fact that the clients handle largest number of building projects among the three groups. Contrary to this finding, Chovichien and Tochaiwat (2005) noted that among all parties (that is public clients, private clients and contractors); public clients have the highest ability to manage construction claims while contractors have the lowest ability. Also contrary to the result of this research finding, Enshassi *et al*. (2009) concluded that the clients and contractors should hold training programmes for their staff so as to understand some of the issues involved in construction claims management process. This implies that the clients and contractors staff does not have enough ability to manage construction claims.

On the general note, the stakeholders used two major frameworks out of eleven identified frameworks namely: construction contractors' claim process framework and claims administration model. The result of this study is in support of Kululanga *et al*. (2001) which concluded that some practitioners have been using construction claims management process while exposure to the use of framework is not widely available in the literature. The finding opposes the assertion of Enshassi *et al*. (2009) which noted that claims in Palestine are managed through construction claims management process with the objective of resolving certain problems in effective and efficient way.

CONCLUSION

The consultants are most aware of the frameworks among the three groups (clients, and contractors). This may be as a result of the consultant's level of exposure and their educational background. On a general view, the stakeholders' level of awareness of the frameworks is deficient, which is requires critical improvement upon to achieving better claims management in the Nigeria Construction Industry. The consultants also have the highest ability to use construction frameworks among the three groups while the contractors have the lowest ability.

This may be due to the facts that consultants are involved in more projects than the other groups. However, this said, efforts need to be made in bring the other two groups up-to-date (to the level of the consultants) for a functional claims management environment to be achieved having it at the back of the mind that construction success requires all parties to be fully informed and well involved in the overall application of the methodologies for addressing the problems associated with the process.

Majority of the stakeholders were not adequately informed of the instruments for managing construction claims. The implication of this is that the much expected amicable settlement of construction claims dispute is still unattainable; as a result of inabilities of the stakeholders to apply the methodologies that can enable them achieve it. The study recommended that adequate sensitisation should be carried out by the professional bodies and the government agencies on the importance of usage of the frameworks, so as to ameliorate the problem of disputed construction claims. Suggested future works should focus on development of frameworks for managing construction claims based on information collected from the study area.

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