

Evaluating the Awareness Level of Risk Management amongst Construction Stakeholders in Nigeria

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Abstract Objectives: To create increase the level of risk management awareness amongst construction stakeholders in Nigeria to enhance strong, vibrant and profitable industry. **Methods/Statistical Analysis:** Descriptive cross-sectional survey design was adopted while stratified random sampling was adopted to select stakeholders. Structured questionnaire and telephone interviews were adopted for data collection. Reliability of the instrument was established by applying split-half method after duly validation by experts in the field. Cross tabulation and chi-square was adopted to test the data, while the test to find out the strength of association between the variables was carried out using Phi and Cramer's V. **Findings:** The study identified the level of risk management awareness among stakeholders to be relatively low at 57.25% when compares to the colossal damages cause by risks in the industry. The finding collaborates previous work by [1] that all parties to a project should have a comprehensive understanding of the risks involved, and risk management procedures should be implemented throughout all the stages of a construction project. It also agrees with [2] work that surmised that risk may arise from that lack of knowledge; as risks are gaps in knowledge which we think constitute a threat to the project. The work goes further to ascertain the strength of association between stakeholders and their involvement in risk management which was discovered to be very weak. Moreover, the critical value of chi-square of 0.004 gotten was lesser than the observed value of chi-square $p = 0.951$. This shows that there is no statistically significant relationship between stakeholders and level of involvement in risk management hence improving previous work. **Application/Improvements:** The study has improved the level of risk awareness, essence of partnership among stakeholders to enhance efficient risk management and realization of project objectives.

Keywords Awareness level, Construction industry, Project, Risk, Risk Management, Stakeholders

1. Introduction

Risk and uncertainty often involve many participants in a project. Each participant uses his own methods of analyzing and managing his scope relevant risk items. For whatever method used, it should objectify and quantify the risk in a project and provide the measurable means of diversifying or sharing the risk among the project participants. The willingness of a participant to accept risks often reflects the professional competence of that participant as well as his tendency to risk. And, since usually each participant tries to minimize his own risk, conflict rises between the participants and sometimes this conflict can be detrimental to the project.

The construction industry, perhaps more than most, is overwhelmed with risks. Thus, the industry demands systematic risk management approach. All too often, risks are either ignored, or dealt with in a completely arbitrary

way. [3] iterated that, it is highly risk prone, with complex and dynamic project environments creating an atmosphere of high uncertainty and risk. The industry is vulnerable to various technical, socio-political and business risks. Most of the decisions, including the simplest ones, involve risks [4]. Risk management is an important part of the decision-making process in construction and now widely accepted as a vital tool in the management of projects [5]. Investigating potential risks requires the collaboration of all disciplines contributing to the project. Technical, managerial, financial, and administrative departments of the participating firms need to cooperate to identify and respond to expected risk events. This integrative process needs practical experience to adapt the required environment [6]. Risk has huge and visible effect on final project cost, delivery time; quality of job done and sustainability. Nigerian construction industry is risk prone because most construction stakeholders rarely take adequate risk management measures. Contracts are awarded without proper evaluation in terms of the financial, equipment and expertise capacity of contractors. Some clients undergo the contractual process without sponsorship plan. These often result into poor cash

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flow, constant conflict on site, poor project execution, time and cost overrun, project abandonment, building collapse and sometimes untimely ‘death’ of projects. The fact that the stakeholders in Nigerian construction industry have not been able to curb this menace indicates they may not fully understand risk management.

Therefore, there is need to evaluate the level of risk awareness of major stakeholders in the Nigerian construction industry. It has become imperative that the stakeholders such as the client, the consultants and the contractors to be fully aware of the significant impacts inherent risks have on project delivery and able to curtail them. Moreover, it is difficult to have a control of what one lacks the knowledge of. Risk factors’ identification, its assessment and mitigation starts with the level of risk awareness. Meanwhile, there have been relatively few or no detailed studies on this issues which form the basis for this research by evaluating the awareness of risk management amongst construction stakeholders in Nigeria.

2. Review of Related Literature

2.1. Concept of Construction Project

A project can be defined as “a product of inputs ranging from material, manpower, machine, management and money under the time constraint and limited fund availability to meet the client’s objective in times of performance” [7]. The beauty of a project is the uniqueness of each project; they differ from one another and has diverse impact. The medium projects are bigger and more technical therefore require the participation of professionals e.g. high rise buildings. Major projects are defined by [8], as large, complex or difficult projects which need a special level of management and are very important for their organizations. They are high risk projects and are particularly demanding because of their size, complexity, schedule, urgency, demand on available resources, or know how. The success of a completed project was linked to the quality of the product. [7] identified two different perspectives of success, the internal was linked to time, cost and scope that underlined the value of project monitoring and control processes. Meanwhile, the external focused on customer satisfaction and system quality. Thus, the scope of uncertainty in any project is considerable, and most project management activities are concerned with managing uncertainty from the earliest stages of the Project Life Cycle (PLC) by clarifying what can be done, deciding what is to be done, and ensuring that it is done. Project participants are often segmented into phases that create information and communication disconnects between them. Risks can run across the life cycle of a project or they can appear at various times throughout the project. Compartmentalization exists where participants only look at risks from a specific perspective and not project life space cycle, and with own intentions in mind irrespective of other project parties. The

role and performance of various project participants and contracting parties in a construction project in each stage can influence project success. There are specific people who are involved in carrying out project execution. These include the client or the developer or the owner; then the contractor and the consultants (the civil/structural engineers, quantity surveyors, the architects and the service engineers). These construction stakeholders play significant role at each stage of project life cycle. The Nigeria construction industry has not been a sector that guarantee successful project delivery. This is because the unchecked risks availability in the industry makes it a threat prone sector and difficult to predict. Hence, it is essential for the stakeholders to be aware of these management principles; collaborate effectively and consistently to overcome identified threats to project success.

2.2. Risks in Construction Projects

Project risk is an uncertain occasion or condition that influences at least one of the project objectives if it occurs. Project risks are always occurring in the future, can occur at any stage in the project life cycle and may manifest without warning. It may have more than one reason for occurring and if it does; it may have more than one impact on the project. The significance of risk stems from the fact that the future is beset with uncertainties both in terms of human behaviour and the characteristics of certain elements [7]. Thus, no matter how small or simple the project, it can still go wrong. As soon as the two parties, the client and the contractor, sign a contract, they inherit risk [9]. Risks cannot be totally avoided, but the choice can be made so that risk is minimized. But the riskier the activity is, the costlier the consequences if wrong decision is made. In that wise, knowing how much risk is involved will help decide if costly measures taken/adopted to reduce the level of risk are justifiable. Risk and uncertainty are inherent in the construction industry. Any available risk in an identified project that may not allow its successful delivery comes from the uniqueness of such project. Therefore, risk should be managed in order to complete the project successfully. Nevertheless, risks of construction projects are often not dealt with properly [10]. Parties to construction projects, i.e. clients, consultants, contractors, subcontractors and suppliers, are all exposed to various risks [11]. It is pertinent to identify the necessary stakeholders that are involved in project management and their expected roles in curbing risks for effective project delivery.

2.3. Stakeholders’ Involvement in Risk Management

Effective Risk management team involves several people with the necessary features and expertise to champion, drive, develop, monitor and continually improve the Risk management process [12]. Thus, [13] opines that Risk management teams consist of all key stakeholders such as clients, project managers, designers, cost consultants, contractors {where appointed}, end users and sometimes

external organizations. ‘The effectiveness of the parties is a function of the effectiveness of the communication between the various parties. Currently, risk management culture is only being noticed in large companies, which have very good reputation, strong financial standing and are involved in large scale construction projects’ [14]. Meanwhile, the construction industry has a poor reputation in coping with risks, many projects failing to meet deadlines and cost targets. Clients, contractors, the public and others have suffered thus [15]. The roles or expected involvement of each of these stakeholders are further discussed. *Contractor’s role*: The contractor is responsible for most of the construction risks such as different site conditions; poor productivity resulting into rework and sometimes structures’ partial or total collapse; labour strikes due to poor treatment, late or poor payment and management; Inadequate cash flow; and defaulting subcontractors and suppliers. *Consultants’ role*: The consultants’ errors and lack of risk awareness bring about design and documentation-related risks in a project. The risks that are peculiar to this category include: insufficient detailing; design errors; design changes; inadequate site investigation and involvement of quacks; and error in the bill of quantities. *Clients’ role* resulting in risk are delays in Payment and given scanty brief. Other forms of risk such as inflation, unstable exchange rate, political disorderliness and force majeure must be considered by the parties and take a unified stand. The respective stakeholder must partner with the other to ensure the realization of project goal which is client’s satisfaction. Management of construction projects involves a great deal of managing risks. Managing risks involves planning, identifying, analyzing, developing risk handling strategies, monitoring and control. Project team members particularly the consultants and contractors should therefore mitigate delays when playing their respective roles. Thus, whatever form or category and sources of risk; it should be effectively managed to achieve project objectives. To make sure that the project objectives are met, the portfolio of risks associated with all actors across the project life cycle should be considered [16]. Thus, the need for their awareness is essential to mitigate anti-delivery process. If the causes of the risks have been identified and allocated before any problems occur, the risk management will be more effective [17]. Therefore, risk management involves not only in solving problems in advance, but also for the preparation of potential problems that can occur unexpectedly. Furthermore, achieving project goals would be determined by the depth of knowledge of the stakeholders on effective risk management.

3. Methodology

Research design can be described as an outline, arrangement of conditions, or a blueprint for collection, measurement and analysis of data, in a manner that combines relevance to the purpose of the research with economy in procedure [18]. It was described by [19] as an action plan for

getting from here to there. Here connotes the initial set of questions for which answers are sort, and there connotes the set of conclusions about the questions. The methodologies used in this study include comprehensive review of literature and adoption of a descriptive cross-sectional survey design. A comprehensive literature review was conducted through relevant books, academic research journals, workshops and dissertations, and online database. The study was designed to obtain the perspective of the key stakeholders in construction industry i.e. the contractors and the consultants in relation to level of their consciousness and awareness of risk management practices and procedures and, if they practice such.

3.1. Study Population

The population of the study consisted of 80 registered construction firms in Enugu, Lagos and Abuja which are the key regional cities in Nigeria with huge construction activities. So also 170 professionals in practicing consultancy’s firms that are duly registered with their respective regulatory bodies such as; The Council for the Regulation of Engineering in Nigeria (*COREN*), *Quantity Surveyors* Registration Board of *Nigeria* (QSRBN); etc. form the respondents.

3.2. Questionnaire Design

The questionnaire employed had two sections. The first section of the questionnaire dealt with the respondent’s general information. While the second section of the questionnaire required the respondent to rate various risk management practices and procedures to ascertain the level of their consciousness and awareness using five-point Likert scale viz-a-viz: strongly disagree = 1; disagree = 2; neutral = 3; agree = 4 and strongly agree = 5. Likert scale rating system has been successfully utilized by several researchers in their studies, such as [20]. The validity of the instrument was carried out by two experts in the field. Reliability of the instrument was established by applying split-half method. Cross tabulation and chi-square was adopted to test the data and a degree of agreement was obtained. Whereby tests were carried out to find out the strength of association between the variables using Phi and Cramer’s V.

3.3. Sampling Technique

Sampling technique is a process of selecting a few contacts or objects from a total population to represent the entire population. Given the wide distribution of construction activities going on in Nigeria and their heterogeneous nature, the purposive or judgment sampling method was adopted in this study. Patton argues that purposeful sampling is a technique widely used in research for the identification and selection of information-rich cases for the most effective use of limited resource.

3.4. Sample Size and Selection

The primary data for this study were collected from 250

respondents including 80 registered construction firms in Enugu, Lagos and Abuja which are the key regional cities in Nigeria with huge construction activities. Multiple construction professionals in Nigeria were contacted using a questionnaire survey. A total of 170 questionnaires were purposively administered to 40 architects, 55 engineers, 65 quantity surveyors and 10 developers in person to get their response on research topic. Telephone call and short message system (SMS) reminders were used to follow up on the responses. Table 2 shows that 187 valid responses were received, constituting a response rate of 75% which was considered adequate for data analysis.

4. Data Analysis and Results

4.1. Stakeholders' Level of Awareness of Risk Management

Since risk is inevitable in construction activities, every stakeholder is expected to be involved in preventing risk in their activities. Risk starts from the supplying of wrong information to the consultants and wrong assumption of

information during brief. Data were collected from the key stakeholders to find out the level of their consciousness and awareness of risk management practices and procedures and if they put same into practice.

Table 1 shows the level of awareness of Nigerian construction stakeholders in risk management. The stakeholders who are more involved in the larger part of project execution and delivery, barely considers risk management. This is evident from the analysis in table 1 which indicated that 57.6% and 56.9% of the contractors and consultants respectively do not undertake risk management procedure in their projects. This is in consonance with [21] who in their previous study on risk management observed that most of the respondents who are familiar with risk management take safety measures against hazards on sites only. They do not undertake risk management that is necessary to the achievement of all project objectives such as cost, time, quality and environmental sustainability. Thus, the poor or weak level of awareness of risk management poses more challenges to the stability and growth of construction industry in Nigeria.

Table 1. Cross tabulation of stakeholder's level of awareness in risk management

		AWARENESS		Total
		No	Yes	
STAKEHOLDERS	Count	37	28	65
	% within STAKEHOLDERS	56.9%	43.1%	100.0%
	Consultant			
	% within AWARENESS	66.1%	66.7%	66.3%
	% of Total	37.8%	28.6%	66.3%
	Count	19	14	33
	% within STAKEHOLDERS	57.6%	42.4%	100.0%
	Contractors			
	% within AWARENESS	33.9%	33.3%	33.7%
	% of Total	19.4%	14.3%	33.7%
	Count	56	42	98
	Total			
	% within STAKEHOLDERS	57.1%	42.9%	100.0%
	% within AWARENESS	100.0%	100.0%	100.0%
	% of Total	57.1%	42.9%	100.0%

Table 2. Chi-Square Tests of the stakeholder's involvement in risk management

	Value	Df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.004 ^a	1	.951	1.000	.563
Continuity Correction	.000	1	1.000		
Likelihood Ratio	.004	1	.951		
Fisher's Exact Test					
Linear-by-Linear Association	.004	1	.951		
N of Valid Cases	98				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 14.14.

b. Computed only for a 2x2 table

The relationship between the construction stakeholders and level of their involvement was tested using chi-square. Table 2 shows that the critical value of chi-square $\chi^2(1) = 0.004$ was lesser than the observed value of chi-square $p = 0.951$. This indicates that there is no statistically significant relationship between stakeholders and level of involvement in risk management. This account for the reason for frequent project delays, cost overrun and continuous and uncontrolled building collapses being recorded in the country. The industry becomes unstable, risky and unreliable when those that ought to ensure risk free and high project performance lack the awareness of risk management. To put same into practice for effective and sustainable delivery becomes unrealistic.

Table 3 shows the outcome of the tests for strength of association between the variables using Phi and Cramer's V. The result indicates the strength of association between stakeholders and their involvement in risk management to be very weak with approximate significant of 0.951.

Table 3. Symmetric Measures of the stakeholder's involvement in risk management

		Value	Approx. Sig.
Nominal by Nominal	Phi	-.006	.951
	Cramer's V	.006	.951
N of Valid Cases		98	

5. Conclusions

Analysis of the data showed that most of the respondents lack the basic risk knowledge; thus, not putting risk management measures in place. The evaluation found out also that the levels of awareness among consultants who are professionals are not sufficient (56.9%). Finding further revealed a gap or poor link between Nigerian construction stakeholders and risk management. Several factors earlier identified by [7] include corruption, political and professional interference. Poor level of risk awareness among the stakeholders account for poor project success. This work has been able to create more awareness of risk to the construction stakeholders in Nigeria and task them on involvement in the practice. The findings have proven that the stakeholders' weak involvement in risk management practice is responsible for the continuous spate of abandoned project, building collapse, cost and time overrun which are the major risk effects in Nigeria. Financial is a major constrain in carrying out the research as it limits the states to be reached for fact finding. Conclusively, more workshops and seminars are encouraged at state and national levels for more enlightenment. Research works on risk management should not just be made academic but gazette for public consumption. Furthermore, quackery should be prohibited in the industry to enhance professionalism. More works is encouraged to be carried out on impact of risk management on the nation economic growth.

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