

Issues In Risk Management: The Perspectives Of Managers In Nigeria's Oil And Gas Industry

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Abstract - Risk management practice continues to be well recognised and integrated as a key function of the project management process in most industry's. Literature has established that it is rapidly becoming an indispensable approach adopted by the oil and gas sector for achieving strategic business objectives and the realisation of capital projects. Semi-structured interviews were utilised to identify fifteen experienced project managers, project engineers and construction managers perspectives on risk management in Nigeria's oil and gas industry. The paper identified risk management literacy and incompetent team formation to be among key issues currently affecting risk management practice in the Nigerian oil and gas industry. Therefore, it advocated the need for enhanced personnel training on risk management practice. Other lessons to be learned for future projects were identified to improve the capacity for the effective management of complexities that maybe encountered in future Nigerian oil and gas projects.

KEYWORDS: *Nigeria; Project management; Risk management; Oil and gas industry*

1. INTRODUCTION

All projects are exposed to a myriad of risks but as a fundamental part of project management, risk management enhances the delivery of projects within predefined cost, time and quality. According to [4], when implemented in line with good practice principles and organisational commitments, risk management also provides desirable benefits for project stakeholders. In today's dynamic and complex business environment more complex industrial projects like oil and gas projects which are valuable assets, require further refinements to assess risks and prioritise protective measures for these critical pieces of economic infrastructure and national pride. The focus of this paper was on Nigeria, a leading African nation and its oil and gas industry.

According to the [37], Nigeria has an estimated population of 158million and it is located in the sub-Saharan region of Africa. The country exercises considerable socioeconomic and political influence in the West African sub region and the entire African continent. Nigeria is the largest exporter of oil in the African

continent and sixth largest in the world [37]. Although oil and gas activities can be considered as the main stay of the Nigerian economy, the general dismal performance of most oil and gas projects recorded by[24] can still be associated with most operations within the Nigerian oil and gas industry. As a result, the main areas addressed in this paper were the major risk and risk management practice concerns affecting Nigeria's oil and gas industry. The succeeding sections of the paper have been structured to provide an overview of relevant literature, explain the research methodology adopted, present, analyse and discuss the data collected and make conclusions.

2. THE CONCEPT OF RISK

Over the years, the concept of risk has been a highly contentious subject. According to [3], the concept of risk can vary according to the perception, standpoint, attitudes, occupation and experiences of an individual. For instance, Project Managers, Engineers and consultants may view risk from a technological standpoint whilst health, safety and environmental professionals may view risk from the safety and environmental standpoint. Therefore, [22] concluded that risk can be generally classified as an abstract concept whose measurement is very complicated since it usually takes on various physical, monetary, cultural or social dimensions. [20]reported that some earlier definitions of risk termed it as the potential for unwanted or negative consequences of an event or activity, thereby giving it just a negative construal. For instance, [36&27] considered risk to be an exposure or a probability of the occurrence of a loss. All these definitions portrayed risk as any adverse factor that can control the success of any situation where it is present. By putting these definitions in context, risk can be assumed to denote a negative attitude towards the environment under consideration. This may also imply that risk can be related to a lack of predictability about a structure, its outcomes or consequences of occurrence during a situation.

On the other hand, more contemporary definitions and standards include the possibility of upside risk or

opportunities (i.e. uncertainties that could have favourable effects on accomplishing desired objectives). [18] defined risk as exposure to loss/gain, or the probability of the occurrence of loss/gain multiplied by its respective magnitude. The [30] defined risk as an uncertain event or condition whose occurrence may have either positive or negative effects on project's objectives. When contextualised, these definitions suggest that the term risk can have a two fold meaning which may be construed to be either negative or positive. But despite the perception of risks as either positive or negative events by these writers, it is pertinent to note that they are all in agreement on the uncertain nature of the occurrences of these events. While most definitions consider risk in terms of the negative and positive wordings, [29] proposed to separate the contradictory meanings of risk. This separation allows both threats and opportunities to be incorporated while considering the positive and negative meaning of the term risk. Irrespective of this suggested incorporation, [29] added that as both positive and negative events in the definition of risk occur in circumstances of uncertainty. Hence, risks or opportunities should be merely considered as uncertainties until they are contextualised. Regardless of opinions concerning a precise concept for risk and opportunity in relation to uncertainty, this research is in agreement with [14] on the fact that any concept that encompasses both uncertain opportunities and threats within a particular definition of risk is a clear statement of intent that recognises the importance risk and the abilities of these related terms to influence events and objectives. What then becomes crucial should be a constant recognition of the existence of risks and its associated concepts and the development of strategies aimed at managing the concepts irrespective of the context they occur.

3. RISK MANAGEMENT PRACTICE IN THE OIL AND GAS INDUSTRY

Risk management can be described as the process of conducting risk management planning, identification, analysis, responses, and monitoring and control on projects [30]. From this definition, risk management during oil and gas construction projects can be defined as a systematic means of identifying, analysing and controlling risks associated with the activities of an oil and gas construction project for the sole aim of achieving the objectives of the project. Therefore it needs to be recognised as a necessity for project delivery and as an integral component of the project management mechanism during the life cycle of such capital projects. Several studies have suggested differing sequences for the risk management process but [38] concluded that risk management based on consensus in most literature is established on a three-fold process comprising of: risk identification, risk assessment and risk mitigation. Regardless of the views on what constitutes the risk management process, [31] concede that a commonality among most risk management processes is the presence of systematic and unsystematic procedures aimed at identifying and mitigating inherent project risks.

There is ample evidence to show that several studies have extensively examined various aspects of risk management in the oil and gas industry. For instance, [23] applied the fuzzy multi-attribute group decision making to develop a methodology for identifying and analysing risks in oil and gas industry projects. [11] identified important risks in Iranian onshore gas refinery plants and introduced a fuzzy multi-criteria decision-making model for industry applications. [25] proposed the leave-one-out-cross validation resampling approach as an effective framework for assessing climate change risk data obtained from experts' judgments during construction projects in Iran. [16] proposed a new structure called the risk breakdown matrix to measure risks in engineering procurement and construction projects. [2] examined the choice and use of successful risk response techniques within the oil and gas industry and compared them with techniques chosen by the construction industry. These studies compliment others by [34;26;12&33] that comprehensively examined various aspects of risk management in oil and gas industry globally or regionally.

The above demonstrates that scholarly activities on risk management appears well appreciated and should be widely adopted during oil and gas industry projects in Nigeria or other regions. Nonetheless, [13] still recorded that the overall performance of most oil and gas projects has been dismal in recent times. Therefore in anticipation of the enactment of the Nigerian Petroleum Industry Bill and with Nigeria's current drive towards revamping its oil and gas industry operations, it is anticipated that the findings from the paper will further contribute to the knowledge which relates to the application of risk management in oil and gas construction projects and facilitate greater awareness amongst industry practitioners and researchers in Nigeria's oil and gas industry. The paper also provides guidance with regards to issues and challenges which must be dealt with in the risk management strategy implementation and project actions, in order to successfully accomplish future oil and gas industry construction projects in Nigeria.

4. RESEARCH METHODOLOGY

To achieve the objective of this paper, semi-structured interviews were conducted among fifteen participants. The participants were mainly project managers, project engineers and construction managers. [7] explained that semi-structured interviews provided an excellent means of gathering relevant information from experts. As such the semi-structured interviews enabled the researcher to understand and assess risk management practices during oil and gas construction projects in Nigeria. Although the process of carrying out the semi-structured interviewing was cumbersome, it allowed for flexibility in terms of main subject coverage and catered for emergent themes as and when they were raised by either the researcher or participants.

All participants had risk and project management experience gained from several years of practice. They had also participated in a significant number of oil and gas projects in Nigeria at various phases. Consequently, their opinions were regarded as those of well-informed practitioners. On the average, each of the interviews lasted for forty minutes during which participants responded to several questions. The questions provided general information on participants back ground for statistical purposes and probed specific issues related to risk management practice during oil and gas projects. Before the commencement of each interview session, participants were assured of their confidentiality and the voluntariness to engage in the interview.

The validity of the entire research was achieved by assessing the plausibility in terms of already existing knowledge on the key issues raised by participants. The validation involved presenting the findings to a different group of participants who were not involved in the study and this was achieved through a focus group. The results of the focus group corroborated most of the findings from the research. On the other hand, rigour was achieved by focusing on the responsiveness of the researcher's during the fieldwork, methodological coherence, sampling, data analysis and thinking theoretically. Subsequently, the data obtained was analysed by adopting the following steps: organising the data; categorizing the data, building of themes and patterns, understanding emerging concepts. Afterwards, findings and conclusions were made for the paper.

5. FINDINGS

Participants exhibited differences in their perceptions of risk and risk management. This was clearly evident from the varying accounts of risk management and its applications. The foregoing may be attributable to individual perspectives of risks and by extension, its management. From their varying explanations, most participants perceived risk management as solely being the management of loss or adverse circumstances. Nonetheless, some participants explained that risk management entailed the management of both project threats and opportunities. Generally, all participants established that risk management plays a critical role at the various phases of oil and gas construction project's lifecycle. On current risk management practice, several participants criticized tendencies for most organisations and project personnel to give greater priority to just the management of health, safety, security and environment type risks rather than on overall project risks.

Interestingly, a participant posited that there are several barriers towards effective risk management in the Nigerian oil industry. Reasons being that risk management is still a novel practice in Nigeria irrespective of its acclaimed acceptance by most oil and gas organisations. The participant suggested that most project managers and even key project resource are not familiar with fundamental risk management principles because *"they just see it as being too ambiguous"*. The participant further stated that for

others, *"they view it as mere waste of money because they really do not see what is actually being done"*. In summarising current risk management practice the participant, observed that, *"generally, the acceptance is not there and it has not been fully welcomed within our industry"*.

Similarly, risk literacy, unplanned business strategies and risk management maturity gaps were identified as issues hampering effective risk management in the Nigerian oil and gas industry. On risk literacy, a participant explained that *"most personnel ranging from project level to senior management may best be classified as risk illiterate people, they have limited risk management knowledge and this affects most of the risk based decision processes in their organisations"*. Concerning unplanned business strategies, several participants observed that there is an existing disconnect between short and long term planning within some oil and organisations and that *"among the senior management cadre where business planning discipline and strategies have not been properly established and aligned, risk based decision methods are doomed because all future actions will merely be reactive"*. Regarding risk management maturity levels, it was noted that *"while issues on risk management have remained paramount in the oil industry, risk management must still be considered as every other evolving organisational process"*. Thus, it was explained that even though it is possible to hire expert personnel to handle risk management, it will still take most organisations several evolutionary processes to effectively align their business practices with to desirable risk management processes. Currently, the participant claimed that *"so far, most organisations do not seem to consider this roadmap to risk management maturity or needless to say that they are even planning towards it"*.

With several expressions, most participants also identified the lack of coordination among contractors/ sub-contractors, technology deployment, bureaucratic government systems, undue government interference, poor designs, incompetent team formation as other major issues in current risk management practice in Nigerian oil and gas industry construction projects. Although militancy, communal restiveness and asset vandalism were identified as key issues, one participant indicated that they should not be categorically classified as risks since stakeholders are aware of the high certainty of their occurrence in most oil and gas projects in Nigeria.

6. DISCUSSION

This section discusses the major finds from the interviews and proposes strategies for Nigeria's oil and gas construction industry. On the perception of risk and risk management, evidence suggests that there is a lack of integration on the concept of risk and risk management among project team members involved in construction projects in Nigeria's oil and gas industry. These differing perspectives of risks are permissible and can even be upheld by literature. For instance, [35] defined risks as the chance of an adverse event. This definition clearly

describes risk as just being associated with negativity. [15] defined risks as the uncertainty of outcome, whether positive opportunity or negative threat, of actions and events. The definition of risks from [15] adopts a neutral approach to risk in which the outcome of uncertainty may be positive or negative. Finally, [30] provides a broader perspective of risks; according to [30], risks are uncertain events or conditions that if they occur have positive or negative effects on project objectives.

From the accounts of most participants and cited literature, it was concluded that defining risks can be highly contentious as such [22] even proposed that risk should be classified as an abstract concept whose measurement is very complicated since it usually takes on various physical, monetary, cultural or social dimensions. As deduced from most participants, risks can be characterised as future events that have tendencies to occur or not occur; uncertain events or conditions whose occurrence affect at least one or more project objectives. All these deductions support the conclusions that emerged from [9], in which it was recognised that although risks may be defined in various manners but the inability to predict its occurrence (uncertainty) remains one of its key consensus characteristics. Also the accounts of most participants highlighted a major focus on mostly health, safety, security and environment type risks during oil and gas industry construction projects in Nigeria. [14] suggested that such practice may perhaps be resulting from limited use of risk management approaches that cater for all inherent risks in most project activities. A veritable means of responding to this shortcoming will be for stakeholders in Nigerian oil and gas industry to broaden their existing risk management process to encompass the management of other risk factors. This can be achieved by adopting a more integrated risk management approach which bridges the gap towards the effective management of other identified inherent risks factors.

Regarding risk management literacy, incompetent team formation and the effectiveness of project teams, several participants blamed the lack of effectiveness and poor performance of project teams on the lack of knowledge and skills of most project team members. Granting that most construction teams in Nigeria comprise of personnel with high educational qualifications and skills, such skills and educational exposures may still be inadequate for managing oil and gas construction projects. This is because most oil and gas construction projects may adopt unfamiliar international standards of compliance. [10] maintained that it is critical for all project team members to have an understanding of the fundamental project requirements. These requirements include project planning, organizing, motivating, directing and controlling as well as maintaining a positive attitude. In addition to these listed requirements, an understanding of risk management should also be included among these fundamental requirements because of its important role towards project actualisation. Additionally, management should instigate a policy for regular training of project personnel. Admittedly, instilling

a risk management culture might be unfeasible in one process for most oil and gas construction project teams because of varying levels of risk and organisational maturity. However, establishing a risk management culture can be accomplished by identifying the core project team participants involved in the risk management implementation and providing them with essential training. This training should include an explanation of what risk management entails, why their organizations adopt it for the given projects, the anticipated effects and a delineation of the individual roles and responsibilities. Similarly, [1] proposed that such training should also be aligned to organisational goals in a manner that the outcomes of the training become integrated into the overall organisational process. To achieve the above, senior management role is very crucial. Earlier on, certain participants decried the inability of senior management to plan, organise and control the risk management process of their organisations effectively. Therefore it becomes vital for senior management to give attention to improvements in their overall managerial skills and abilities by also familiarising themselves with current risk management methodologies which are suitable for oil and gas construction projects.

Concerning design issues, although local and foreign design experts are currently utilized for oil and gas construction project designs, participants disclosed the continuous dominance of foreign design experts. This is in spite of several legislations like the Nigeria local content law which has made a strong case for the harnessing of indigenous expertise and technology during oil and gas industry activities. The dominance of the foreign design experts was attributed to inherent complexities that trail most oil and gas industry project designs. Participants espoused that this trend may be responsible for several bottlenecks such as specification and design scope ambiguities which often result in schedule delays. To reduce the occurrence of threats that may arise from design issues, the paper proposes the adoption of greater partnership philosophy. According to [17], the underlying principle of partnership is instigating a long-term commitment between two or more parties for the purpose of achieving specific business objectives by maximizing the effectiveness of each party's resources. Relating this to oil and gas industry construction projects in Nigeria, project sponsors should demonstrate their commitment by providing adequate resources to support the design experts with clear specifications and scopes as well as prompt remuneration and rewards for their services. On the other hand, designers should reciprocate by deploying adequate resources to ensure that design jobs meet desired client specifications. [34] added that using experienced and familiar design companies, concurrent engineering, good translation of the owner's ideas to design parties and hiring of competent consultants to evaluate design works are among possible strategies that can be deployed simultaneously to reduce threats emanating from design issues. On the issues emanating from the lack of coordination among contractors/ sub-contractors, this paper posits that only contractors with sufficient expertise should

be selected. Such contractors and sub-contractors must be encouraged to adhere to risk management standards from relevant methodologies during their project activities. Also, where applicable they should have their operations well planned and also provide feasible schedules for their clients from the commencement of projects. This is in addition to only utilising those contractors and sub-contractors with stable financial backing for any construction related project.

Technology is indispensable in most construction activities because of the associated complexities. Thus, the possession and deployment of modern technology can even be classified as critical factors to succeed and sustain in today's business environment and oil and gas construction projects are not an exception. However, [28] observed that one serious challenge to the construction industry in most developing countries is the inability to adopt or adapt established best practices already working in other countries. The findings from most participants also indicated that this challenge is visible during most oil and gas construction projects in Nigeria. As explained by some participants, while the Nigerian government policies and most organisations' vision tend to support the use of current technology, there are still several challenges associated with its seamless deployment during most oil and gas construction projects. Consequently, what lies ahead for the Nigerian oil and gas industry will be to initiate strategies that will plan, direct, control and coordinate the development and implementation of technological capabilities for its operations. This act while contributing towards actualising seamless projects will mitigate the consequences of wrongful deployment of technology during future oil and gas project operations.

Another issue raised by participants was the delays in project approvals due to government bureaucracy. Whilst the issue of scrutinising bureaucratic bottlenecks in government process for approval may be external to the scope of this paper, [6] generally suggested that by maintaining cordial relationships with government at various levels, organisations can reduce delays in their project approvals. Additionally, [21] advocated that project management practitioners and organisations in developing nations should instigate and maintain access to key government decision makers. This minimises unnecessary political interference in the execution of projects and during practice. Furthermore, it is important for oil and gas organisations to be constantly acquainted with stipulated procedures for obtaining project approvals as well as operational regulations and permits required for executing oil and gas industry construction projects in Nigeria to avoid undue delays. [34] opined that when organisations are accustomed with stipulated government procedures, certain concerns resulting from government bureaucracy can be readily circumvented.

Based on their experience, certain participants also identified unusual weather, militancy/ communal restiveness as majors that should be considered when executing oil and gas industry project in Nigeria because of

several socio-economic issues facing the nation. Admittedly, some of these factors like community restiveness and militancy were independent of their organisations' control while others flooding and unusual weather occur as a result of the actions of inevitable natural forces which are also beyond human control. However, [8] believed that these factors should normally not be excuses for contractual non-performance but equally added that they may still be considered as factors that can trigger non-performance and threats to projects under exclusive contractual arrangements. To cater for these highlighted issues, [19] submitted that such factors can be adequately covered by insurance companies. Thus, what lies ahead is for oil and gas industry stakeholders in Nigeria to engage the services of standard insurance organisations as a means of transferring and mitigating the impact of these factors.

As articulated by one participant, *"there are several generic templates available for risk management, and I am aware that every so often, companies just utilise them for new jobs"*. This finding has an important implication for oil and gas construction projects and justifies the need for an adoption of a more pragmatic approach such as the stage-gate risk management approach. According to [5], the stage-gate approach divides the overall project into distinct stages separated by management decision gates. In the stage-gate process, every stage comprises of a series of activities and gates act as decision checkpoints. Adopting the stage-gate process to risk management during oil and gas construction projects in Nigeria will facilitate an identification of critical project milestones at which reactive risk management will be performed rather than relying on risk management plans that were set prior to project initiation. The stage-gate risk management approach can be achieved by introducing gates for risk assessment at the end of each phase or milestone of the concerned project.

In general therefore, because of the limited availability of resources and unlimited requirements, the outcomes of capital projects executed especially within highly economic sectors like the oil and gas industry have to be predicted with greater degrees of certainties. However, because the levels of certainty may vary, certain predictions may become unfeasible because of some of the issues earlier identified. As a result, there must be the requisite knowledge and ability of industry stakeholders to alter previous decisions and incorporate corrective strategies that will still facilitate the realisation of their original project requirements. All these can only be achieved through effective risk management; this is because risk management facilitates reduced uncertainties and lessened duplication of efforts and resources.

7. CONCLUSION AND IMPLICATIONS

The objective of this paper was to examine risk management practice issues affecting oil and gas construction projects in Nigeria. Although its intent was not to generalise from the paper, however, it has provided useful insights for the future direction of oil and gas

industry construction projects in Nigeria. The uncertainties (threats and opportunities) that arise from a myriad of factors amplify and strengthen the importance of bringing effective rigour and challenges to decisions at all phases of oil and gas construction projects in Nigeria. Therefore, the deployment of robust risk management strategies that optimise the delivery of projects become essential from the project appraisal phase to the completion and operational phases of oil and gas projects.

Risk management literacy, bureaucratic government systems, undue government interference, poor designs, incompetent team formation were identified to be among key issues in current risk management practice in Nigerian oil and gas industry projects. The paper addressed these issues and proposed solutions that will facilitate more successful project actualisation. This paper represents only a small step towards enhancing the understanding of risk management practice issues in oil and gas industry projects in Nigeria. As such, further research would still be welcomed to generate wider valid constructs and establish other empirically tested models for bringing about improved risk management practices in the Nigerian oil and gas industry as well as other similar climates.

8. REFERENCES

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