

## Relevance of Risk Management in the Delivery of Construction Projects in Developing Countries

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Submitted on: 17/11/2021

Accepted on: 30/06/2022

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### Abstract

*Construction projects suffers poor performance due to poor risk management in its process in developing countries. A strict set of understanding regulations must be followed during the construction process to avoid these risks. Unfortunately, it is uneasy in construction projects to completely avoid risks as they are bound to be unknown factors that arises over the course of project execution. Risk management in construction projects is inherently risky but technically complex than projects in industries. It is one of the major rules undertaken by a project manager for an effective management of a construction projects. An effective management approach to projects is required as most times risk is handled through application of contingencies or time that are not determined based on comprehensive analysis of the risks that can affect a particular project. This paper establishes the relevance of risk management in the delivery of construction projects in developing countries. It further gives an overview of performance and addresses the problem inherent in risk managements in construction projects that will allow for achieving a successful project delivery within the context of time frame, minimizing cost overruns and optimizing project quality. The paper recommends that in order to improve the chance of success in construction projects and reduce the potential risks, risk management must be an important part of the decision-making process for a construction enterprise.*

**Keywords:** Contracts, Construction, cost overruns project performance, risk management,

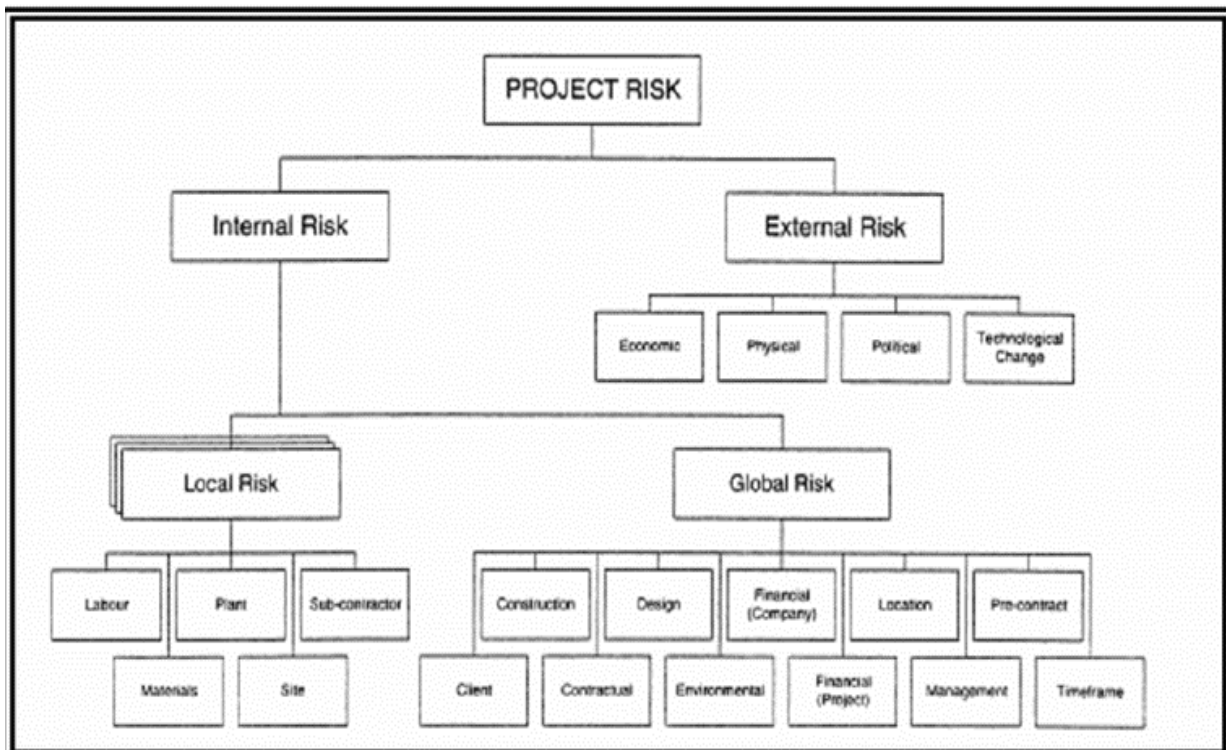
### Introduction

Construction projects are initiated in complex and dynamic environments resulting in circumstances of high uncertainty and risk, which are demanding time constrains. Apparently, the construction industry earns its reputation from its perceived performance in terms of the value it produces and also plays a key role in the economy of any nation, which is a vital contributor to the gross domestic product (GDP) growth and produces the built environment that supports other sectors of the economy in most part of the world. Efforts have been made to improve the performance of the construction industries in many developing countries (Rwelamila and Ogunlana, 2015; Ofori, 2018). These have taken many; forms but studies show that the industries continue to face problems including poor cost, time and quality performance; lack of work opportunities; poor level of professionalism and entrepreneurship; obsolescence of some statutes and codes; ineffectiveness of implementation of existing statutes and codes; bureaucracy in formal procedures relating to project planning and administration and management of risks in construction projects. In terms of performance, the industries in developing countries fall short when compared with other sectors of the economy, as well as with their counterparts elsewhere with regard to productivity, quality, safety and health, and environmental performance According to PMI (2002) which establishes that there is a strong link between the amount of risk management undertaken in a project, and the level of success of the project; more successful projects use more risk management.

Risk management evolves in built measures as to develop acceptable safety levels which not only enhance values but reduce failures, hazard, losses and wastages. The historical context of risk management in the construction industry has been risky for several reasons which includes poor record of completion to cost

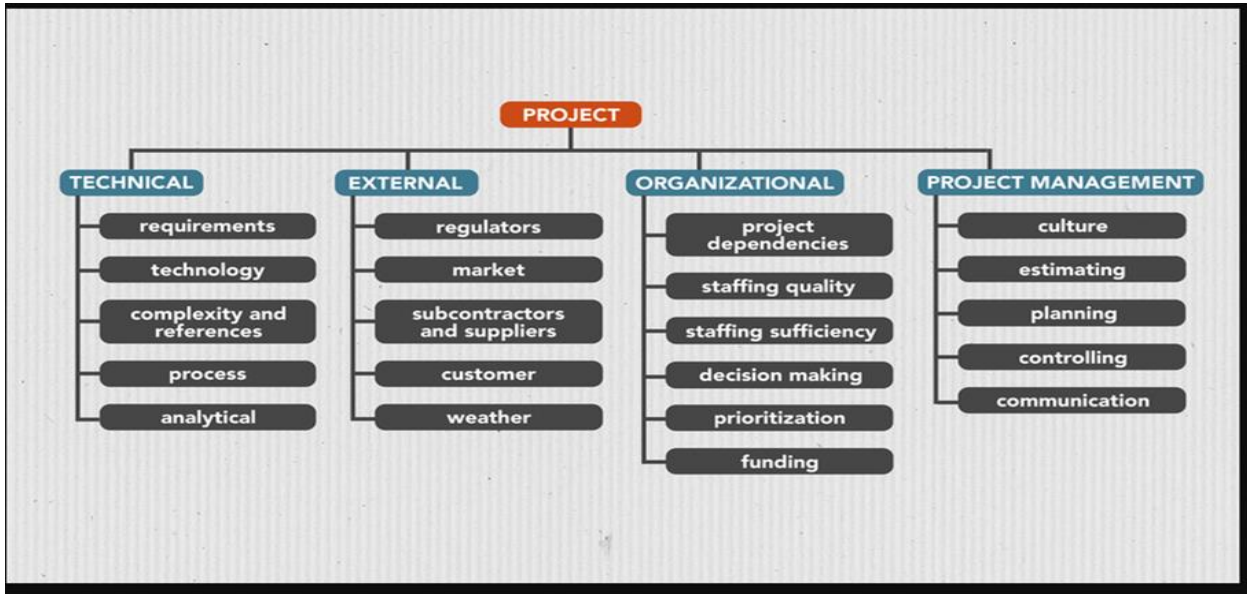
and time, high levels of disputes and litigation, intense competition for work, low margins and profit risk, poor safety and occupational health record, pressure to produce a high return on funds invested, pressure to save time and money, pressure on health and safety provision. Risk management thus allows a balance to be struck between taking risks and reducing them. Though the cost of risk is a concept many construction companies have never thought about despite the fact that it is one of the largest expensive items. The risk can therefore be managed, minimized, shared, transferred or accepted. It's productiveness from integral conceptualization of project design through procurement construction, maintenance and occupancy stages is very germane to success of projects. Ofori (2018) posits that the nature of projects and the existence of uncertainty which is present throughout the lifecycle of the project is greatest in early planning phases of concept and development which gradually reduces during the accomplishment phases of implementation and termination of the project lifecycle.

Risk is a multi-faceted concept. In the context of construction industry, it could be the likelihood of the occurrence of a definite event/factor or combination of events/factors which occur during the whole process of construction to the detriment of the project a lack of predictability about structure outcome or consequences in a decision or planning situation, the uncertainty associated with estimates of outcomes - there is a chance that results could be better than expected as well as worse than expected (Mhetre *et al.*, 2016). Thus, risk as an ingredient of development is in between hazard and safety, while hazard is the tendency of an event to have potential to cause harm or loss, safety is the actual activity of the operators to avoid or mitigate the identified harm. Thus, when risks come to fruition, they can have a serious impact on costs, schedules, and performance of your project which will lead to delays and disputes down the operationalization of the project. In addition to the different definitions of risk, there are various ways for categorizing risk for different purposes too. Some categorize risks in construction projects broadly into external risks and internal risks while others classify risk in more detailed categories of political risk, financial risk, market risk, intellectual property risk, social risk, safety risk, etc. The classification is shown in the Figure-1. The typology of the risks seems to depend mainly upon whether the project is local (domestic) or international.



**Figure 1:** Hierarchical risks involved in a project.  
Source: Jeremy (2020)

The good news according to Baraka *et al.*, (2019) is that most of these risks can be managed and mitigated with proper planning and good project management. Also the risk in construction projects can be broken down into structure as expressed in Figure 2. (A risk breakdown structure is a hierarchical chart that breaks down project risks starting with higher-level categories and continuing down into sub-levels of risk).



**Figure 2:** The risk breakdown structure

Source: Jeremy 2020

The risk breakdown structure pictured above organizes the project's risks into four major categories: technical, external, organizational, and project management. Therefore, in construction project administration, an unidentified hazard for which provision has not been made always have the most significant impact on construction projects. The phases of the project include initiation, preparation, implementation, monitoring and control, and closure. The risks with a project can be technically categorized into:

- (i) Known risk- Risk determined at the planning process, that can be figured out right before it happens at the execution stage. It can be dealt with before it happens, since it can be detected before it happens.
- (ii) Unknown risk- Unknown risk remains an unexplored risk until during the stage of planning or implementation. It can't be promptly controlled unless it is detected before it happens. Furthermore, it can be detected and organized before the incident.
- (iii) New or discovered risk: Risk identified during and before the control risk process which is under the execution phase.
- (iv) Secondary risk: A risk that arises from another risk response strategy, which was detected during risk assessment.

Onengiyeofori *et al.*, (2018) submits that project risk has a positive or negative effect on construction projects. These effects include time, cost scope or quality where the project time objective is to be delivered in accordance with the agreed- upon schedule and where the project cost objective is to be delivered within the agreed-upon cost. Thus, risk conditions could include aspects of the project or organization environment that may contribute to project risk. This risk includes poor project management practices, lack of integrated management systems, concurrent multiple project or dependency on external participant who cannot be controlled.

El- sayegh (2008) presented a list of several factors in the terms of owners, design contractors, subcontractors, suppliers, political, social and cultural, economic materials while Haytham, (2019) suggested four ways of classifying risk which are project management risks, engineering risk, execution risks and suppliers' risks. Meanwhile Onengiyeofori *et al.*, (2018) categorized risk into eight ways which are technical risks, managerial risks, resource risk. Productivity risks, design risk, client risk and subcontractor risks. Thus, different approaches can be used to classify the risk associated with construction projects and the rationale for choosing a method must serve the purpose of its research.

### **Project risks in the construction industry**

Project risk is an unexpected occurrence or circumstance which, when it happens, has a tangible ramification on a project's goals. Risk components are an event that may or may not occur, the probability of the occurrence of that event and the consequence of that event (Nnadi and Ugwu, 2013). Risk Classification as defined by PMBok (2017) provides a structure to allow a comprehensive and all-encompassing way of classifying risks in a coordinated way to a clear amount of precision and leads to the efficacy and consistency of the recognition of the risk method.

Various studies have been done with regards to the classification and categorization of risk; some of these studies are as follows; Mhetre, Konnur and Landage, (2016) broadly classified risk into technical, construction, physical, organizational, financial, socio-political and environmental risks. A study carried out by Abu Hasan et al., (2012) divided risk into construction finance, construction time and construction design. Howard and Serpell (2012) classified construction project risks into external risks, project risks and internal risks, these three categories are then further broken down into other categories. According to Yeasin (2012), project risk can be classified into external risks, legal risks and internal risks. External risks can be defined into unpredictable and predictable risks. Internal risks are also further divided into Technical and non-technical risks.

### **Risk Management in the Construction Industry**

There are two types of risk management: formal and informal. Risk management without a defined method is known as informal risk management. In this instance, the contractor often allows for a fixed amount or a percentage contingency to absorb any risks that develop during construction. It is evident that this method requires little effort, but it is extremely hazardous and does not support the decision-making process. These procedures differ from one firm to another, as well as from one author to another (Baraka et al., 2019). In the last four decades the risk management research has grown considerably in the construction industry given that construction projects are exposed to risk at the time of their coming into existence (Schieg, 2006; Yeasin, 2012; Isson, 2007) and are perceived to have more inherent risk due to the involvement of many contracting parties such as owners, contractors and designers, among others (Alferedo et al, 2014; El-Sayegh, 2008. Schieg, 2006). In risk management and assessment, the time of the assessment has a major impact on the measure that will be taken, whether proactive or reactive. Research study by Winegard and Warhoe (2003) broke down the risk management process into:

- Identification of risk;
- Risk assessment and analysis;
- Risk mitigation-development of risk reduction and reaction to threats;
- Implementation of risk management plan; and
- Review and correction of risk assessment.

The first two steps are crucial since the preceding procedures may not be beneficial without a reliable analysis. The lack of accurate risk assessment tools during the planning and decision-making stages of a project allows for risk development.

## Risk Identification

Risks and other dangers are difficult to eradicate; however, it is much easier to take action and maintain control when they have been discovered. Risk management will be more effective if the causes of risks are identified and addressed before any problems arise (PMI, 2004). Risk management entails not just anticipating and resolving problems, but also anticipating and resolving future problems that may arise unexpectedly. This process should be undertaken early in the life of a project, as it is generally known that decisions made during the project's early feasibility and design stages have the most influence.

Various strategies can be used to identify all the risks that could affect a certain project. It is critical to use a method that the project team is most comfortable with and that will benefit the project. The goal is to draw attention to potential issues so that the project team is aware of them. Nnadi and Ugwu, 2013 posited methods used for risk identification in a construction project which are:

- (i) **Brainstorming:** This method, which is one of the most effective, entails an open, truthful, and in-depth discussion. It should take the shape of an informal meeting, with an experienced chairman designated to encourage a productive debate and document the proceedings. All project parties and participants for that particular project should be at the meeting. People's worries, regions of uncertainty/hazard, prospective hazards, chance of occurrence, and the potential repercussions of these risks associated with the project are all triggered by this method. This method is very beneficial in risk management workshops. The goal is to bring together all of the project's major stakeholders to identify and prioritize the project's risks.

This technique allows stakeholders to hear what the rest of the project team sees as risks and then utilize those ideas to help them identify new project concerns. It is critical to carefully select the members of the brainstorming group since a successful session requires the right mix of project professionals with sufficient expertise and seniority.

- (ii) **Interviews:** This is one of the risk management approaches used by risk managers to identify potential development risks. Interviews should be overseen by an experienced manager who is in charge of distributing documents to interviewees as well as recording and analyzing their responses. The interview format should be created ahead of time and preferably distributed to the interviewees prior to the scheduled interview. All project participants should be included in the interviewees. It can be done on a one-to-one or many-to-one basis. The most significant downside of this procedure is that it takes a long time to complete.

- (iii) **The Delphi Technique:** An appointed manager prepares a questionnaire and distributes it to all project members in this approach. Members of the team fill out the questionnaire and return it to the management. The manager re-assigns them so that each participant receives a unique set of feedback. The team members are then requested to resubmit their previous responses after revising and reconsidering them. The management collects the responses once more, and the cycle is repeated until the manager is satisfied that a consensus has been established. It is certain that no stronger personalities will be able to dominate using this method. This procedure, on the other hand, is tedious and time-consuming.

- (iv) **Questionnaires:** These are typically derived from prior project experience and specific project criteria. They are structured and prepared by a management before being delivered to the entire project team. Potential danger sources are made public and can be observed. The questionnaire might be in one of two formats: broad (with no specific prompts or questions) or comprehensive (with explicit prompts and questions). It is suggested that this procedure be used in conjunction with other techniques. The key benefit of employing questionnaires is that they allow for open and honest risk disclosure without the influence of powerful individuals. They also provide a

consistent presentation of answers, ease of analysis, and a quick response time. The major downside to this method is that the questionnaire format and the questions it entails are all from the manager and therefore all the necessary questions necessary for the risk identification may not be asked.

For the risk identification process, it is advised that a combination of the prior methodologies be used. As a result, the drawbacks of one strategy could be mitigated by employing other strategies. If a potential risk is found, a first evaluation should be conducted to determine the risk's potential consequences.

- (v) **Industrial checklists:** Project and product documents are often prepared by a documentation specialist. Checklists are particularly useful in identifying risks since they frequently reference probable failure locations in previous projects. Corporate knowledge is used to examine historical data from prior similar projects. Database systems that actively manage and report project progress could be a valuable source of data. However, such systems are frequently constrained in terms of the data that can be used or is useful.

In assessing total risks, balancing resources to moderate between risk with a higher chance of occurring and lower loss with a higher loss and lower chance of occurring can be misconstrued and difficult. Meanwhile, the factors which characterize the project risks are

- (i) The Event – what might happen to the detriment of the project:
- (ii) The degree of Probability- how likely is the event to occur
- (iii) The amount at stake- the losses (or gains) which could occur.

However, for taking a risk in a construction project is to win a specific return. In each case the potential return should be defined and measured in appropriate units, usually of cost.

According to Haytham *et. al.*, (2019), the sources of risk are different, and can evolve over the course of the project. This can be divided into internal and external sources. The internal source means those under the influence of the project manager for more clarity, while the external source is outside the control of the project manager. External factors include economic conditions, political circumstances, legal risks, environmental hazards, social conditions and natural ecosystems. On the other hand, internal factors are such as structural technologies and threats to human factors. Construction projects have multiple factors of uncertainty, including but not limited to construction parties' results, material availability, natural conditions, other parties' involvement, and contractual relationships,

In contracts, there are major areas of risk in contract engagements; these include; contractual, performance, financial, political, technical and geographical (Nnadi and Ugwu, 2013). The relative value of risk can be the same with a low probability and large amount at stake versus a high probability and low amount at stake. The relative value of risk can be established from the following relationship.

$$\text{Risk} = \text{Probability of an event} \times \text{Consequence of loss due to that event} \quad (1)$$

Event Per event Graphical representation of risk ratings can be made by plotting graph between probability and seriousness as explained in Figure 3 below.

### **Project Risk Management Phases**

The aim of managing project risk is to be proactive as a manager by predicting, as far as possible, the risks which are likely to impact on the project, to examine such risk and to minimize the effect of such risks. The riskier the activity is, the costlier the consequences if the wrong decision is made. The process of risk management consists of four phases which are identification, assessment, response, documentation and control.

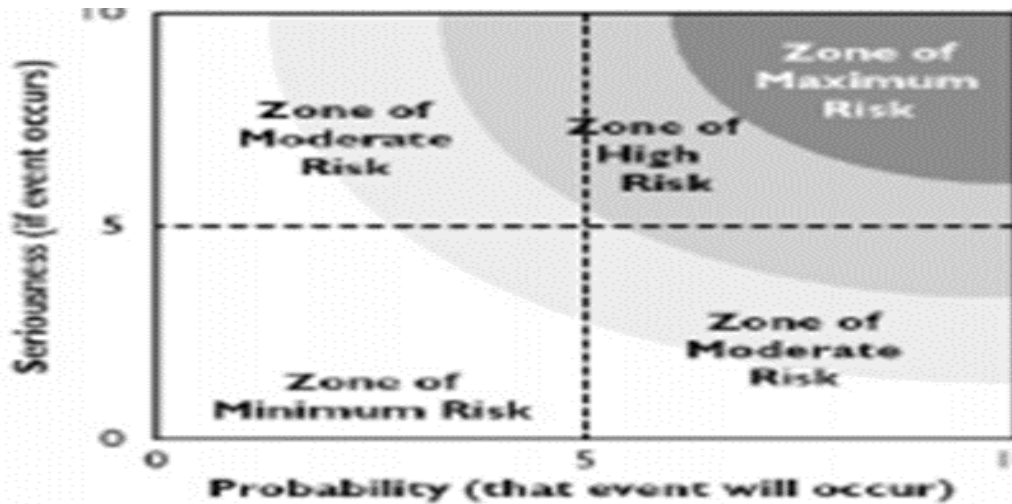


Figure 3: Seriousness vs probability of event occurrences.

**Risk event status= Risk probability x amount at stake** (2)

**Project Risk Identification**

This is a process of identifying risks by the use of generating and developing a comprehensive checklist that are typically arranged by the source of risks. This checklist must be related to the type and environment of the project the list must not be dependent on probability of occurrence or the possible amount of impact. However, the process of risk identification may require the updating or further planning in a project.

**Project risk Assessment**

This is to assess the implications of the identified risks on a project. The risk assessment starts with an attempt to determine quantitatively and qualitatively value the hazard situations in a construction project that can cause loss or harm to people. Baraka et al. (2019) posits that the process of risk assessment involves the followings:

- (i) Identifying the actual or potential locations and probable frequency of exposure to risky and hazard situations in construction project.
- (ii) Exposure assessment in form of concentration, times or period of exposure to establish if it is within acceptability limits
- (iii) Estimating the quantity of hazard that may be exposed during construction and the use of building.
- (iv) Establish the risk characteristics that are used to calculate the numerical estimate of the risk.

Therefore, in analyzing risk assessment, Jeremy (2020) concludes that there is a strong relationship between the amount of risk undertaken in a project and the level of the project success.

**Risk value (or status) = Risk probability x Amount at stake** (3)

Where:

**Risk Probability =  $\frac{\text{Frequency of relevant events}}{\text{Total number of possible events}}$**  (4)

**Amount of risk at stake =Cost of investment loss + least cost to original condition** (5)

**Project Risk Response**

The project risk response involves determining ways to reduce or eliminate any threats to the project, and also the opportunities to increase their impact.

This involves various ways in which project manager can respond to the assessment of the identified risks. The option of the response are to: ignore ( this is when the project managers feel confident of their ability to manage the relevant identified risks), transfer(this is when the responsibility of the identified risk are transferred to other person or organization), share(when the identified risks is shared between the partners for the specific aspects of the project as agreed), To this end, the risks involved have to be managed in order for the projects to run smoothly and this is where risk management comes in, however there are factors that can affect the risk management process, which will in turn affect the project. Karim *et al.*, (2012) posited that there are twenty-five (25) common risk factors that may come up during the course of a construction project. However, these identified factors can further be categorized into 5 categories such as; (1) Construction (2) Politics and contract provision (3) Financial (4) Design and (5) Environmental.

**Table 1:** Common risk factors and their categories

<b>Risk Category</b>	<b>Risk factor</b>
Construction	Land acquisition
	Shortage of equipment
	Shortage of material
	Late deliveries of material
	Poor quality of workmanship
	Site safety
	Insolvency of subcontractors
	Inadequate planning
	Weather
	Insolvency of suppliers
Politics & Contract Provision	Change in law and regulation
	Delay in project approval and permit
	Inconsistencies in government policies
	Excessive contract variation
	Poor supervision
	Bureaucracy
	Compliance with Government
Finance	Delay in payment for claim
	Cash flow difficulties
	Lack of financial resources
Design	Improper design
	Change of scope
Environmental	Pollution
	Ecological damage
	Compliance with law and regulation for environment issue

Source: Karim *et al.*, (2012)

According to Karim *et al.*, (2012), the categories that were ranked the most significant of the risk factors was construction and finance, while the top ranked risk factors were shortage of materials, delayed procurement of material, equipment shortages, poor workmanship standards, and working capital issues. These goes to show how important finance is in a construction project as it affects every aspect of a project from conception to the end of the project.



Oladinri *et al.*, (2012) and Rehacek (2017) concludes that some of the theories of risk management are not applicable in the construction industry as most of these theories exist on a theoretical basis while Belel and Mahmood (2012) affirmed that a major cause of risk in construction is due to scarcity or lack of knowledge and this is the most significant issue that limits risk management activity. PMI (2013) submitted six (6) critical success factors for risk management which includes;

- (i) Recognition of the value of risk management
- (ii) Individual commitment/responsibility
- (iii) Open and honest communication
- (iv) Organizational commitment
- (v) Scale risk effort to project
- (vi) Integration with project management

Furthermore, Adeleke, Bahaudin and Kamarudden, (2016) suggested that the connection between the factors affecting effective construction risks management along with the influence of the Nigerian government's rules and regulation in the execution of construction projects are of internal factors and external factors. The internal Factors comprises of effective communication, team competency skills and active leadership. While the external factors occurs beyond the control of the internal factors and are of political factors, technological factors and economic factors.

### **Internal factors**

- (i) Effective Communication: This is often overlooked as a key component of success. For a project to be effective and risk-free, open, dependable, and frequent communication is essential. Effective communication, on the other hand, is critical for any business and project team. Authentic and unambiguous information must be given at the appropriate time, at the right place, and with the right people during the construction project. The flow of information, both top down/downward and bottom up/upward, is a key part of the project to consider. It lowers disagreements, improves decision-making, and has an impact on team member performance in front of their project manager, therefore a lack of all of these characteristics will influence or harm the organization's effective construction risk management (Abu Hassan et al., 2012).
- (ii) Team competency and Skills: This is a critical element to be examined since it offers educated and technical human resources that contractors, project managers, and team members need to meet project objectives. In terms of skills, knowledge, and attitude, team competency and skills can be seen (Gerald, Lee-Kelley and Kutsch, 2010). Team dynamics are also linked to team competency, which refers to the types of characteristics that a team possesses as well as the characteristics that are required for implementation phase. As a result, any organization that lacks team competency and skills will have a negative impact on effective construction risk management.
- (iii) Active Leadership: Many Researchers concentrated on discussing leadership styles, behaviors, and techniques. A project's success necessitated a different type of leadership than usual project work. Therefore, an aggressive leader in building projects is needed in the industry which defines who can take decisive decisions on the fly to prevent making the issue worse. As a result, any organization that lacks active leadership will have a negative impact on construction risk management.

### **External Factors**

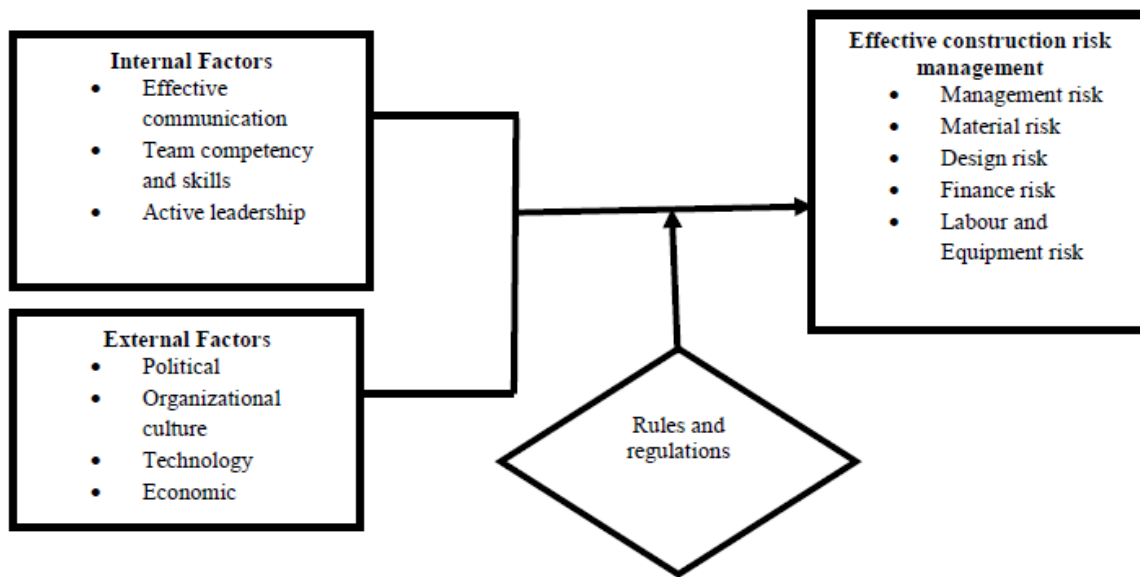
External factors occur beyond the controls of the organization or project team. They include; political factors, organizational culture factors, technology factors and economic factors (Abu Hassan et al., 2012).

- (i) Political Factors: Environmental elements such as safety, community perception, legal acceptability, as well as political and social repercussions, all have a significant impact on the project. Political issues also such as tax regimes, riots, legislative laws and so on also have a significant impact on construction projects (Abu Hassan, 2012).

(ii) Technological Factors: Technology is the point of view of an environment that must be taken into account in the strategic goals of emerging countries. Also, the availability of locally made plant and equipment, the volume of local material resources and the level of exploitation of local construction resources, as well as skilled labour resources are all part of the factors that come to play that may be used to determine a suitable and proper construction technology.

(iii) Economic Factors: The economic and financial aspects of an organization are determined by the amount of global economic activity as well as the financial budget to complete the work, which includes economic competition at differing stages around the recruitment and procurements of all parties participating in construction projects (Abu Hassan, 2012).

According to Sambasivan and Soon, (2007), there are twenty-eight major construction risk factors that lead to delays due to ineffective construction risk management, as well as their effects on construction projects. These includes insufficient finance and payments for completed projects; lack of materials; labour supply; failure and equipment availability; poor communication between parties; and inadequate finance and payments for completed project as expressed in the figure (4) below. Aibinu and Odeyinka (2006) identified forty-four (44) risk variables that lead to delays in building projects in Nigeria due to a lack of efficient construction risk management. The study also highlighted major risk factors such as management, material, financial, and design risk factors which encompasses all the areas of a construction project that could be subject to risk and hinder the risk management process (Adeleke et al, 2016).



**Figure 4:** Conceptual framework showing the relationship between internal factors, external factors and effective construction risk management  
Source: Adeleke, Bahaudin and Kamarudden (2016).

**Risk Responses in Projects**

Scholars ascertained that the risk response shows what measures should be taken against the established risks and vulnerabilities. The management of risk is critical to project success and it is the task of risk management to manage a project’s exposure to risk (Prince2, 2005, p251). The approach due to be selected in project cases depends on the nature of potential risks. Similarly, the project managers should work to ensure that opportunities occur since risks are known as an uncertainty of outcome whether positive (an opportunity) or negative (a threat) (Murphy 2021). The response(s) to a given risk should reflect the risk type, the risk assessment (likelihood, impact, and criticality) and the organization’s attitude to risk. The response(s) to negative risks includes, risk avoidance, risk transfer, risk mitigation / reduction

while the response(s) to positive risks involves risk exploits, risk enhance, risk acceptance and risk review.

The risk response planning involves determining ways to reduce or eliminate any threats to the project, and also the opportunities to increase their impact. Project managers should work to eliminate the threats before they occur. There are a number of possible responses to risks and as risks can be threats or opportunities which include responses that are suitable for potential opportunities. The responses are summarized in the table below

**Table 2:** Risk responses in project

<b>Risk Responses</b>	<b>Description</b>	<b>Suitable for risk types</b>
<b>Threat - An uncertain event that could have a negative impact on objectives or benefits.</b>		
Avoid	The risk is avoided by changing the project in some way to bypass the risk.	Some political risks e.g., adverse public opinion. Some technical/operational/infrastructure risks e.g., maintenance problems. Legal and regulatory risks e.g., regulatory controls, licensing requirements.
Transfer	Some or all of the risk is transferred to a third party for example insurance.	Some strategic/commercial risks e.g., theft, insolvency can be insured against. See business risks for more examples. Environmental risks e.g., natural disasters, storms, flooding may also be insured against see risk insurance.
Reduce	Action is taken to reduce either the likelihood of the risk occurring or the impact that it will have.	The most frequently used response to risk. Widely applicable - Technical/Operational/Infrastructure e.g., negligence, performance failure, scope creep, unclear expectations. Organizational/management/human factors e.g., personality clashes, poor leadership, and poor staff selection.
Accept	The risk may be accepted perhaps because there is a low impact or likelihood. A contingency plan will be identified should it occur.	Some political, legal and regulatory, and economic/financial risks may need to be accepted with a contingency plan in place e.g., war and disorder, exchange rate fluctuation.
Contingency	Here a plan is put in place to respond if the risk is realised.	Economic/financial/market Political Legal and regulatory Arguably all risks can and should have a contingency plan in place.
<b>Opportunities An uncertain event that could have a favourable impact on objectives or benefits.</b>		
Share	An opportunity is shared with a partner or supplier to maximise the benefits through use of shared resource/technology etc.	Technical/operational/infrastructure e.g., new technology, improved designs.
Exploit	A project could be adjusted to take advantage of a change in technology or a new market.	Economic/financial/market e.g. new and emerging markets, positive changes in exchange rates or interest rates.
Enhance	Action is taken to increase the likelihood of the opportunity occurring or the positive impact it could have.	Strategic/commercial opportunities such as new partnerships, new capital investment, new promoters.
Reject	Here no action is taken and the chance to gain from the opportunity is rejected. Contingency plans may be put in place should the opportunity occur.	Political or environmental e.g., new transport links, change of government bringing positive changes in policy/opportunities for lobbying etc.

Source: Murphy (2021)

## Conclusion

Risk in the construction industry, or any industry for that matter is inevitable and as such, important measures have to be put in place to help curb these risks, however it should be noted that not all the risks can be effectively curbed, as some can be transferred, reduced or even accepted, depending on the nature of the risk. The risk management principles provided should be applied correctly based on the details of a project and the organizational environment. Thus, when the risk management is conducted in accordance with good practice principles and with an organizational commitment to making choices and taking actions in an open and fair manner, it gives benefits. However, the factors associated with risk and the factors associated with risk management are very similar as studies have shown this. Also, many factors are often classified and categorized under different areas of a project in order to make it easier to address each of these factors as effectively as possible. It is germane to clearly identify every stage of a project in order to identify the risks in every stage of a project so as to determine the nature of the risk and deal with it effectively as effective risk management helps in guaranteeing the success of a project. Risk assessment can be assessed either qualitatively or quantitatively through various methods. Risks can be identified at any point and either can be detected at any stage because of its technicalities. However, with proper education and enlightenment on risk management and the factors associated with it, the projects in the construction industry will record a great improvement which will in turn help the construction processes in the developing countries. Construction projects execution requires a richer, more complex knowledge base therefore, discussion on the risk management knowledge base is a worthwhile endeavor for the developing countries.

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