

AN OVERVIEW OF RISK MANAGEMENT IN THE CONSTRUCTION PROJECTS

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ABSTRACT

The study was carried out in order to obtain a comprehensive conceptualization on risk and the consequences it has in the fields of construction and the required management operation. Along with the utilities and techniques adopted to control risk in the construction industry, the effect of risk on the project assessment is also discussed. The aspiration of the topic of research is to be able to enquire into the productive method of implementing risk management in construction industry, to be able to respect the various types of managing techniques manipulated to reduce risk, to define the utility of implementation of the risk management, to resolve the components that affect the execution of risk management in the life cycle of projects. The following study discloses the research which focuses on distinguishing the practices of risk management and construction projects in the Arab region.

Keywords: Risk management, management, construction, project

INTRODUCTION

The risk management of a certain project is considered as one of the major roles that is undertaken by the project manager. Proper and systematic techniques, knowledge and experience are required approaches to enable effective and efficient risk management. For instance, knowledge of the unanticipated events that might prevail while execution of the project is required (Serpella et al, 2014).

Considering that projects carried out in the construction division are widely complicated and usually have significant budgets, the major priority of the project manager is to reduce the associated risks. It should be noted that risk management is not a utility that ensures success but rather aids in increasing the likelihood of acquiring success. Therefore, risk management is a proactive concept as opposed to a reactive concept.

In compliance with the Project Management Institute (PMI, 2004), one of the nine most critical parts of project authorization is project risk management which indicates a sturdy relationship between risk managing and project success. The majority of the time, risk is administered through the manipulation of contingencies or floats (respectively money or time) which are not defined relying on a comprehensive analysis of the risks that can trigger a certain project, which in many cases is insufficient to cover the outcomes of the risks that take place during the project apprehension (Serpella et al, 2014).

The majority of the applications utilized in the project risk management pinpoint their concentration on quantitative risk analysis. On the contrary, these systems do not allow remedial measures for risks or problems (Tah and Carr, 2001).

(Lyons and Skitmore, 2004) discovered that the most conventional risk identification methods utilized in the engineering construction industry is brainstorming. A matrix for determining the suitable risk management approaches in the built environment of each stage of risk was developed by (Forbes et al, 2008). Among several others; artificial intelligence,

decomposition, probabilistic analysis, sensitivity analysis and decision trees are some of the techniques included.

In the construction industry, analyzing and managing risks is a significant part of the decision making procedure. The high degree of risks from the nature of micro and macro environments in particular to construction are greatly associated with the construction industry and their clients (Zavadskas et al. 2010). Comparatively, the construction industry's reputation is very weak when concerned in coping with risks due to the failure of various projects meeting the deadlines and budget targets.

It is commonly known that construction industry is one of the most treacherous, demanding and dynamic industries across the globe (Hwang et al., 2017). This industry is vulnerable to a variety of risks as a result of its monetary extremity, intricate procedures, long project durations, eisky environment and relationships with associates (Panthi et al., 2009).

RISK MANAGEMENT DEFINITION

Risk management as a concept has become very widespread in a great deal of various businesses. So often, several companies develop a risk management approach in their projects in order to be able to enhance the production and enlarge the gains. Risk management nowadays, is a fundamental constituent of project management (Olsson, 2007) and (del Caño and de la Cruz, 2002) and it is notable that the most impenetrable activities are to dictate what the risks of the projects are and in what way these risks should be prioritized (Anderson, 2009). This is an essential procedure in project management and the majority of the managers are aware that risk management is the key foundation for project management (Baloi and Price, 2003). There is a relation between vagueness and risks as was indicated by (Hillson, 2004): "The risk is the uncertainty measured, and uncertainty is a risk that cannot be measured".

The possibility of a ruinous occurrence taking place in the project and affecting its purposes (Yu, 2002) and (Baloi and Price, 2003) is the definition that describes how risk is considered to be a multifaceted concept.

The practice of recognizing and evaluating risks and to be able to apply techniques and approaches in order to reduce these risks to a tolerable extent can define what risk management is (Tohidi, 2011). Therefore, it is notorious that the essential aspiration of risk management is the identification, evaluation, and controlling of the risks in order to achieve project success (Lee et al, 2009). Risk management is used in many different fields and differs from one context to another. In the construction project management context, risk management is an extensive and logical method of defining, evaluating and acknowledging risks in order to obtain the project objectives (Project Management Institute, 2004).

Risk management in projects is a systematic procedure focused on the identification, assessment and response to the risks of projects. The definition of this procedure differentiates from one research literature to another (Uher and Toakley, 1999), (Ward and Chapman, 2003). Regardless, all the definitions concur that the objective of project risk management is to maximize opportunities and minimize the outcomes of a risk occurrence in the construction project.

RISK MANAGEMENT IN CONSTRUCTION PROJECTS

Considering the complexion of the construction division, management of risks is a very significant element. Risk management is greatly utilized in projects that include excessive levels of variability and these kinds of risk ventures are distinguished by additional

systematic arrangement, monitor and control procedures. The straightforward technique in identifying risks is to observe and entice a conjecture from previously executed projects that have failed in the past (Cleland and Gareis, 2006). Risk management mechanisms ought to be initiated during the early phase of the project in which the project planning and contracting of the work along with the exploratory capital budgets are being extracted. In subsequent phases, risk management logically applied, aids in controlling the crucial elements that can negatively affect the project production.

By way of explanation, when the threats are previously identified and kept track of, the outcome will include initial warnings for the project manager if any of the targets are not being achieved; which include time, cost or quality (Tummala and Burchett, 1999).

Consistently, the construction mechanism is split into four essential phases. These phases include programming, planning, procurement and production. The initial phase is the programme phases in which the client obtains a concept about the project and studies conditions for its implementation. Throughout the planning phase the architects are required to develop construction drawings in accordance to the requirements set by the client. Respectively, the procurement phase includes the signing of a contract between all parties involved in the project. Lastly, the production phase, which involves the execution of the job required by the contractor.

Generally, in construction, the term risk usually refers to the aspects that might hinder the aim of the project in regard to the time, cost and quality. It is important for the contractor to be able to identify the risk that can be faced in order to become aware and prepared in advance for the perplexity that arises.

There are a variety number of risks, which in the construction industry are identifiable and are faceable in every construction project neglectful of the project size and capacity. The most common and general risks in projects that are faced by the construction sector include differentiation in the design and scope as well as the time frames for the project completion. The deeper in the procedure, the change in the capacity or design is executed, resulting in extra additional resources, duration and budget, which is required by those changes. Comparable to delays in schedule, the completion of a project ahead of schedule can also be as troublesome. The fact that a project is completed quickly might be the outcome of inadequate planning or design problems which in reality minimizes the completion duration but in contrast can lead to low quality of the final product and an increase in the gross cost. Usually, when behind schedule, it creates larger costs for both the contractors and the investors as a result of the disagreement between the contracted works (Gould and Joyce, 2002).

Distinctive risks take place during different stages of the project. In most cases risks are usually inherited from one project stage by the succeeding one. There are various techniques for codifying the project risks and risk sources (Tah and Carr, 2000), (Baloi and Price, 2003) and (Li et al., 2005). Generally, the risk sources of any construction project can be split into three divisions:

- Risks, such as finance, economy, political, legal and environmental which are related to external elements.
- Risks that are in relation to internal elements, for example design, construction, management and relationships.
- Force superior risks.

The purpose behind the process of risk identification is the ability to determine the probable risks which may influence the project. In the literature works, there are various mechanisms manipulated in order to categorize project risks and risk sources that can be utilized in establishing those compilations. The following is a list of possible risks which can be found in literature works (Smith et al. 2006), (Potts, 2008), (Lester, 2007).

- Budgetary "Financial, Economical, Investment"
- Bureaucratic " Legal, Political"
- Environment "Environmental, Natural, physical"
- Technical "Technical"
- Project "Contractual, client, Project objectives, Planning, scheduling, Construction, Design, Quality, Operational, Organizational"
- Human "Labor, stakeholder, Human factors, Cultural"
- Market "Market"
- Safety " Safety, Security, crime"
- Materials "Resources, Logistics"

Furthermore, the complication of the socio-economics embraced in construction matters causes it to be more prone to risk in which negative effects of the project sustainability might be present (Zavadskas et al.,2010). The construction industry is greatly diverse and miscellaneous, which is a result of several complicated circumstances, and in turn the industry experiences a great matter of dynamic differentiation along with global sourcing and inclination of the price competition. Generally, contractors have utilized high mark-ups in order to prevail over these risks, but as their margins have become smaller, the techniques have no longer been effective (Baloi and Price, 2003). The phases included in construction projects during the later decades have become much more complicated in nature, which is the outcome of technological upgrading and stakeholder pressure, and are classified by an amount of riskiness that have a dissenting impact on the projects (Jafarnejad et al.,2014).

RISK MANAGEMENT IN CONSTRUCTION PROJECTS IN ARAB COUNTRIE

Researchers in Qatar have been able to discover what the contractors and most of the owners suffer from, which is the absence of understanding of the methods of alleviation and risk prevention. Additionally, the manipulation of risk analysis approaches is absent and generally they rely on the subjective prudence utilizing past experience in time and cost estimation. The research had advocated that the necessity of providing more needs was required in order to suppress the dilemmas related to the poorly managed construction projects. Therefore, owners and contractors must take the authority to administer their applicable risk elements and work from the feasibility phase onwards to confront possible risk factors in time. Furthermore, in Palestine, the recommendations were similar. A few of the significant recommendations can be outlined as follows; the experiences collected from the neighboring countries in the area of construction of projects should be utilized, in particular the matter of risks management so to be able to diminish these risks by maintaining annual technical meetings to share the different views on risk management, their hindrance and the techniques manipulated to alleviate them. Consequently, the aspect of Engineering Design must be achieved through Consultancy firms confirming that the design review is conducted by a third party in order to guarantee design quality (Abazid, 2017), (Nouban and Abazid, 2017). An organization should be assembled in order to control the risks along with all the required resources (manpower and financial) and all the compulsory authorization that qualifies them to confront the risks. Perpetual and occasional assessment must be carried out through the

coordination of periodic examinations in order to develop the productivity effectiveness of the construction projects.

(Kartam and Kartam, 2001), unveiled that in the construction risk management implemented in Kuwait, the local contractors were occasionally accountable for the majority of the risk factors. Also the manipulation of formal risk evaluation mechanisms for management and risk control was restricted and the contractors greatly depended on cooperation with the subcontractors. The contractors demonstrate more keenness to obtain risks that are either contractual and legal related as opposed to the other types of risks present.

It has been assumed previously and in accordance to the many modifications in UAE, that the cultural distinctiveness is greatly significant, but the actuality that neither of the two constructs of have no direct impact on project success, as a result, the project success element score declines (success is decreased) with inclining scores for Cultural Diversity and UAE Culture. Specifically, the UAE cultural characteristics and cultural diversity seem to be mainly unfavorable in the construction industry for project success. All of these particular risks are connected to cultural differences either by partnership or by matters of important direct or indirect impacts. Thus, it may be recommended that, in an attempt to better the risk management and project success in the construction industry of UAE, the main focus would be on the management of the factors related to the cultural diversity in contrast to the general cultural matters (Hasani et al., 2017).

CONCLUSION

Projects, in the later decades, have become more complicated and risky in the construction industry as a result of the multiplicity nature of the activities among worldwide organizations. The feasibility of the elimination of all the risks affiliated with a certain project is unlikely. The best that can be achieved is the regulation of the risk allocated to various groups along with the proper management of the risks. Chapman and Ward discussed that the choice decisions of the contract are fundamental to both stakeholder management and the management of the risks and unpredictability. Therefore, an integrated mechanism can be established depending on a balanced inducement and risk sharing technique to contracting alongside a better practice methodology to risk management in terms of the entire life cycle of a project in which contractors usually are aimed at obtaining and acceptable scope of excess margin.

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