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Factors and Impact of Risk Management Practice on Success of Construction Projects of Various Construction Companies, Kanya Kumari

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ABSTRACT

The complexity in construction plays a major role in the emergence of numerous risks in large projects. To minimize the impacts of risk, a good and effective risk management system must be incorporated into every project. A potential risk management system should include the assessment and measurement of the performance, as this can provide real-time updates about the progress, which in turn can be used to make the risk management system more effective and efficient.

This research is conducted to identify significant factors of risk and the impact of Risk Management Practice for success of construction projects of various construction companies in Kanyakumari. This research is based on a scheduled survey to collect the data using sampling of nearly or fully completed projects. Data from respondents by rating on a 5 point Likert scale were analyzed through software tools like MS Excel and SPSS. The extent of agree or disagree of respondents about research variables was assessed by using the Mean Score (MS). The objective of studying the impact was achieved through hypothesis testing using regression between the three independent variables i.e. risk identification, assessment and response. This paper gives a review of Risk management and its impact on Construction from literatures of various authors.

KEYWORDS: *Risk management, Factors, Impact.*

I. INTRODUCTION

Risk management is a very known and important concept nowadays in industry. In recent years, intense research has been conducted on the field of project risk management . No construction projects are risk free. Every construction project, large or small, involves risks, varying in impact. Risks may hinder the successful completion of a project by causing time and budget over-run, and/or quality defect. Common problems affecting the construction industry in developing countries include lack of management skills, shortage of skilled labor, low productivity, shortage of supplies, bad quality of supplies and lack of equipment. Apart from technical issues, management-related problems are one of the most important aspects facing construction contractors since they have to deal with substantial constraints such as incomplete information,

unpredictable client behavior and uncertain project circumstances.

In the early days of project management, the projects were generally of short duration- about one to three years and the environment was much more stable. The modern day projects, such as privatized infrastructure projects, have project life that is spread over many years. Projects are becoming larger and having higher degree of complexity. These projects involve the huge capital investment, generate unbalanced cash flows, and involve perplexed contractual agreements. They encounter changing economic and financial situation, face unpredictable political environmental changes.

Risk management has emerged, as the deciding function of project management. Risk management is the art and science of managing risks caused by unforeseen changes (uncertainties) which may require deviations from the planned approach and may therefore affect the achievement of the project objectives.

II. SCOPE AND OBJECTIVES

The main objective of this research is to assess the risk factors and impact of risk management practice on success of construction projects of various construction companies in kanyakumari.

The study also aims:

a)To identify various the success criteria.

b)To identify the significant factors of risk

c)To examine the risk exposure of construction projects.

d)To analyze the impact of risk management practice on success construction projects.

III. LITERATURE REVIEW

Literature review aimed to identify the factor and impact of risk management practice on success of construction projects.

The report "Risk management in construction industry- A case study" was written by Suchith Reddy. A.Sheffield Hallam University, UK.(2010), The research topic "Risk Management in Construction Industry" is to explore the effective way for implementation of risk management in construction industry, to consider the different types of risk management techniques applied to alleviate risk, to identify the use of implementation of the risk management, to determine the factors that can influence the applications of risk management in the project life cycle, wherein to categorize the principles adopted in Risk Management. A survey was conducted on the following aspects of it, a) Identify, characterize, and assess threats involved in the construction industry b) Assess the vulnerability of critical assets to specific threats. c) Determine the risk (i.e. the expected consequences of specific types of attacks on specific assets). d) identifies ways to reduce those risks. e) Prioritize risk reduction measures based on a strategy.

The report "Managing risks on construction projects" was written by Shangjia Yu, Vol.VII,Issue VIII- August(2018), Due to the large investment and long construction period of the project, the contractor is bound to face the set goals of project impact such as quotation, construction period, quality, safety, lawsuit, natural climate and contractor behavior after it is completed and put into use. The realization of the above project objectives are agreed through the construction contract signed by the contract parties, so the ability of risk control must be emphasized so as to reduce the contract risk and reduce the loss of the parties. This article analyzes risk management and countermeasures on the construction projects. The author will set up two scenarios with the application of Addictive Weighting Technique of MADM method for each of these risk types, one for the threat and the other one for the opportunity.

"A model for risk management in building construction projects" written by Varun raj and Ajith .P.M,Vol V,(2018), The projects fail to achieve their primary objectives due to the absence of an effective risk management system. An effective risk management system consists of identification of risks, assessment, response to critical risk and then controls the risk by monitoring. There are various factors which affect the occurrence of these risks. All those risk occur during the project life cycle results in financial loss and even in the stoppage of a particular project. Hence in order to prevent this, proper risk management is very important. The study focuses to establish a Bayesian Belief Network model to improve the time, cost and quality performance of building construction projects. A questionnaire was prepared based on the identified risks and survey was conducted among 140 construction firms. Risk analysis using Probability impact matrix helps in identifying the level of criticality of any risk in construction domain and the model developed establishes relationship of various risks affecting project performance.

The report "Risk analysis in construction project – chosen method" written by Agnieszka dziadosz & Mariusz rejment,(2015),Risk analysis enriches the decision-making process and provides additional arguments, which help to select the optimal variant of a construction project using the Multi-Aspects approach. This article presents three different methods of the risk analysis. These methods differ in their methodology from each other. The verification was started from the simplest techniques using some qualitative variables. This method is based on the considerable subjectivity of a decision maker although it is relatively simple and easy to use. The analysis was finished on the statistical method, which determines the type of used data therefore it affects the quality of the results. The areas of application and analytical capacity of the listed methods are illustrated with the short examples, simultaneously outlining their characteristics from the analysis. The research problems, which are the canvas of application of the discussed methods are not mutually interrelated. They present different aspects of variants of the investment process.

Mudau & Pretorius (2009) aim in their study "Project control and risk management for project success: A South African case study" to assess the extent to which project control and risk management contribute to, and how it can be used effectively in ensuring project success and identify the factors that contribute to project success. The results of the questionnaire were processed and analyzed by using a spreadsheet application. The main findings indicated that project controlling and risk management have a significant influence on performance of the project and therefore on the success of the company. It was also found that effective earned value management contributes positively to the project success. By strengthening and focusing more on project controlling and risk management methods and processes, the performance of projects should improve.

Ewer & Mustafa (2008) explain in their study "The Impact of Risk Management on IS Projects Success in Syria" the impact of the risk management, on information systems projects in Syria. It uses questionnaire to get information from IS managers and developers in Syria. The conclusion of this research presents that many of Syrian IS companies don't have a formal risk method, and using risk management will increase the success rate of IS project.

Bakker & Wortmann (2010) present in their paper "Does risk management contribute to IT project success", a meta-analysis of the empirical evidence that either supports or opposes the claim that risk management contributes to IT project success. In addition, this paper also investigates the validity of the assumptions on which risk management is based. The analysis leads to remarkable conclusions. Over the last 10 years, much has become known about what causes IT projects to fail. However, there is still very little empirical evidence that this knowledge is actually used in projects for managing risks in IT projects. This paper concludes with indicating new directions for research in the relation between risk management and project success. Key elements are stakeholder perception of risk and success and stakeholder behavior in the risk management process.

Dr. Haitham H. Al-Shibly, Dr. Basem M. Louzi , Mohammad A. Hiassat Al-Balqa Applied University,(2013), paper on "The impact of risk management on construction projects success from the employees perspective" The main objective of this research was to study the impact of risk management on construction projects success. The survey attempts to specify if the project they experienced achieved the success criteria, this was according 7 criteria factors were defined for construction project success listed in the questionnaire. The distributed questionnaires were 230 questionnaires and got 200 questioners back with percentage of 87.4%. The results of the current study indicate that there is an impact exists between both Risk identification and Risk assessment on project success, scheduled time, planned budget, and the ability to comply with technical specifications. While there is no impact between Risk assessment and avoiding lawsuits or claims. Also the study indicate that there is an impact of Risk response on project success, meeting the scope of work, scheduled time, and achieving the quality standards.

In this study Karimi., et al., Mousavi,N,, Mousavi,S & Hosseini,S (2011) "Risk assessment model selection in construction industry, A contractors perspective" obtain Decision criteria from the nominal group technique (NGT). The proposed method can discriminate successfully and clearly among risk assessment methods. This Study concludes that the identification and assessment of project risk are the critical procedures for projecting success, and this study conclude that there must be in Construction project between dissimilar, yet contractually integrated parties, owners, designers, contractors,

sub-contractors, suppliers, manufacturers, and others.

Culler & Watson (2009) defined in his dissertation "The degree of relationship between critical success factors and information technology project performance" study was to define the relationships between the 10 critical success factors and information technology project performance. The current research data supported associations between 10 critical success factors and information technology project performance. The current research data confirmed that there is relationship between 10 critical success factors and information technology project examination of the data analysis failed to support a significant affect by project demographics on the relationships between 10 critical success factors and performance of information technology project.

Patrick X.W. Zou a, Guomin Zhang b, Jiayuan Wang c (2007) in their case study "Understanding the key risks in construction projects in China" performance. This research examined deeper the affect of project demographics on relationships between 10 critical success factors and information technology project performance. This research found that the understand the key risks in construction projects in China and to develop strategies to manage them. Postal questionnaire surveys were used to collect data, based on which a total of 25 key risks were ascertained. These risks were compared with the findings of a parallel survey in the Australian construction industry context to highlight the unique risks associated with construction projects in China. Strategies to manage the risks were sought from the perspectives of project stakeholders and life cycle and in light of the Chinese construction culture. It is concluded that clients, designers and government bodies should take the responsibility to manage their relevant risks and work cooperatively from the feasibility phase onwards to address potential risks in time; contractors and subcontractors with robust construction and management knowledge should be employed to minimize construction risks and carry out safe, efficient and quality construction activities The researcher conclude that the responsibility must be held by the clients, designers and government in order to manage their risk and to address potential risk on time, the risk must be minimized in construction projects ad carried out safe, efficient and quality by the contractors and subcontractors with robust construction and management knowledge.

"Risk management, project success, and technological uncertainty" a paper by Tzvi Raz, Aaron J, Shenhar Dov Dvir (2002), Risk management tools and techniques, have been developed to improve project success, are used too little, and many still wonder how helpful they are. In this paper we present the results of an empirical study devoted to this question. Based on data collected on over 100 projects performed in Israel in a variety of industries, we examine the extent of usage of some risk management practices, such as risk identification, probabilistic risk analysis, planning for uncertainty and trade- off analysis, the difference in application across different types of projects, and their impact on various project success dimensions. Our findings suggest that risk management practices are still not widely used. Only a limited number of projects in our study have used any kind of risk management practices and many have only used some, but not all the available tools. When used, risk management practices seem to be working, and appear to be related to project success. We also found that risk management practices were more applicable to higher risk projects. The impact of risk management is mainly on better meeting time and budget goals and less on product performance and specification. In this case, we also found some differences according levels of technological uncertainty. Our conclusion is that risk management is still at its infancy and that at this time, more awareness to the application, training, tool development, and research on risk management is needed.

Mohammed M Alkhathami, PhD (2004) paper on "Examination of the correlation of critical success and delay factors in construction projects in the kingdom of Saudi Arabia states", This study extracted seven of the most important success and delay factors according to the literature (14 total success and delay factors), and then examined correlations between them to determine which were the most influential in preventing project delays. Two surveys were distributed throughout the Kingdom of Saudi Arabia. The first examined how project owners and contractors that collaborated on the same project perceived success and delay factors, while the second examined the perceptions of engineers in general. Data was collected and evaluated by statistical methods to measure the strength and direction of the relationship between critical success and delay factors, to examine owners' and contractors' evaluations of projects' critical success and delay

factors, and to evaluate the influence of critical success factors on critical delay factors. Additionally, one and two-way analysis of variance (ANOVA) has been used to examine how the group or groups evaluated the influence of the critical success factors in avoiding or preventing each of the delay factors, and which success factors were perceived as most influential in avoiding or preventing critical delay factors. The research found that sound organization planning efforts and a competent and experienced project manager helped to avoid many critical delay factors, while adherence to safety precautions and procedures and a project team's motivation and goal orientation were the least influential among the seven success factors.

"Critical Success Factors for effective risk management procedures in financial industries" A study by Prapawadee Na Ranong and Wariya Phuenngam (2009) states The turmoil of the financial industry emphasizes the importance of effective risk management procedures. Consequently, this thesis studies "What are the critical success factors for effective risk management procedures in financial industries?" This research question was formulated in order to gain a better understanding of risk management procedures and to examine the critical success factors for effective risk management procedures.

IV. Conclusion

The uncertainties in a construction project is higher and the risk following the project is humongous. In this literature review it is found that Risk is ineluctable, but managing the risk using various strategy and perseverance helps to overcome the barricade, the impact of the Risk management plays an important role in the construction projects and practice of various projects. techniques in adaption to the environment influence to the success of construction.

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