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Survey and analysis of risk management in building construction work

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Abstract - The literature on construction and project risk management is reviewed and analyzed to identify trends and foci in research and practice. This analysis is used to identify gaps and inconsistencies in the knowledge and treatment of construction and project risk. The paper describes, on the basis of a questionnaire survey of general contractors and project management practices in Pune, the construction industry's perception of risk associated with its activities and the extent to which the industry uses risk analysis and management techniques. It concludes that risk management is essential to construction activities in minimizing losses and enhancing profitability. Construction risk is generally perceived as events that influence project objectives of cost, time and quality. Risk analysis and management in construction depend mainly on intuition, judgment and experience. Formal risk analysis and management techniques are rarely used due to a lack of knowledge and to doubts on the suitability of these techniques for construction industry activities.

1.INTRODUCTION

The management of risk in projects is currently one of the main topics of interest for researchers and practitioners working in the area of project management. The nature of the construction projects makes the industry unique in that the manufacturing facility or plant must move to the construction site (Hinze, 2001). There are many different descriptions of the construction industry, drawn from different specialist disciplines. This vagueness is compounded by the fact that the construction involves such a wide range of activity that the industry's external boundaries are also unclear (Murdoch and Hughes, 2000). For example, the term "construction" can include the erection, repair, and demolition of things and diverse as houses, offices, shapes, dams, etc. Construction is difficult to comprehend fully because the relationships between the parts are not always clear and the boundaries of the industry may be characterized as: It is fragmented, It is sensitive to economic cycles, There are extraordinary diversity of professions, specialists and suppliers, It is largely affected by external environments .There is no other industry that requires the proper application of business practices much as construction industry. The many variables and complex relationships that exist between variables that must be considered in the process of building a construction project necessitates sound business practices and decisions. The coordination and use of many types of labor skills, materials and equipment that are used to build a project require daily application of proper business practices (Adrian, 1975). The variable environment surrounding the construction project complicated decisions to be made concerning the use of labor, materials and equipment. In addition, governmental influence and labor practices have a bearing on business decisions that must be made (Adrian, 1975).

2. Objectives

1.Identifying key risk factors that could stand in front of construction processes by reviewing the literature and through the additions that could be made by the industry practitioners, i.e. contractors and owners.
2.Investigating the severity and the allocation of each identified risk factor according to the perspectives of contractors and owners.
3.Examining the risk management actions efficiency that are applied in the industry by each category (contractors and owners).
4.Studying a case of construction to get in-depth information about the impacts of the identified risk factors on the project regarding the schedule and the cost.
5.Providing practical suggestions and recommendations pointing toward upgrading the risk management process in construction and improve the performance of contracting companies and owners in this field.

3. Research Importance

The management of risks is a central issue in the planning and management of any venture. Construction industry is

subject to more risk and uncertainty than many other industries. The process of taking a project from initial investment appraisal to completion and into use is a complex process. Construction industry in Pune is suffering from the misunderstanding of risk management including risk identification, analysis and assessment, and that is why this research is important, where it will discover the risk factors in the construction industry in Pune and determine the importance of each factors in terms of severity and allocation.

4. Purpose of the study

Risk management became an essential mission of the management missions. Taking into account that the construction industry is considered one of the most risky industries, unfortunately, few researchers have participated in this topic addressing the construction industry in the local market. This study is to analyze risk factors affecting the construction industry in Pune.

5. Methodology

The data for this study was obtained by means of a questionnaire. The questionnaire was distributed either personally or via e-mail to a random sample of about 50 project managers from the construction and high-tech sectors in Pune during 2016. At the end of the survey period there were 84 usable completed questionnaires. The questionnaire consisted of three main sections, each containing a number of brief questions to be answered on a 0±5 scale. The ®rst section dealt with the extent of the contribution of individual PRM tools to the project success in general. The objective here was to identify the tools that were perceived as being the most valuable by the respondents. The second section of the questionnaire dealt with the effectiveness and efficiency of the manner in which projects are managed in the respondent's organization. With these questions we sought to investigate whether there is a relationship between the use of PRM tools and the level of performance of the project management process. The third section addressed the contribution of a risk management process to overall project success. In particular, we wished to learn about the differences in PRM tool usage between those project managers who believe that risk management is a valuable process, and those who do not.

6. Discussion and conclusion

Risk elements associated with construction projects influence the time, cost and quality performance of the project. Risk management therefore becomes a continuing activity in project development, from inception and throughout the life of the project. The questionnaire survey of contractors and project management practices within the UK construction industry shows that both perceive risk in construction as the likelihood of unforeseen events occurring which could adversely affect the potential completion of the project, i.e. in terms of cost, time and quality of performance. Although risk management techniques have been used in other industries for a long time, the construction industry has approached risk management in terms of individual intuition, judgment and experience gained from previous contracts. One major drawback of risk analysis techniques is that the more powerful and sophisticated the technique, the more data and time is required. Construction industry activity is constrained by time because construction production is mostly employed just-in-time for the client's production requirement.

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