Risk Assessment in a Construction Project at Kolhapur City

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Abstract:
Risk management in the construction project is the operation by which a company deals with a major incalculable event that threatens to injury the organization, its stakeholders, or the general public. Elements are common to most definitions of Risk: a). a threat to the Company, b) the element of shock, and c) a short decision time argues that "Risk is a process of to where the old technology can no extended be maintained." Therefore the fourth defining standard is the need for alternate.

1. INTRODUCTION
Risk Assessment in construction projects is full of deficiencies that affect its effectiveness as a project management function and in the end, projects' performance. For several years, Risk Assessment in the construction industry has been approached using a simplistic approach that produces poor results and limits the quality of project management. For example, most of the times risk are handled through the application of contingencies (money) or floats (time) that are not determined based on a comprehensive analysis of the risks that can affect a specific project, and that in numerous cases are insufficient to cover the effect of risks that do occur during the project realization. Then, in most cases, projects end with costs overrun and late. To make an effective and efficient Risk Assessment it is necessary to have a proper and systematic methodology and, more importantly, knowledge and experience of various types. For sample, it requires an understanding of the sudden events that may occur during the execution of a project. The absence of an effective project Risk Assessment function has several negative consequences for participants in a project due to a lack of preventive action against the risks and uncertainty that any project presents. The lack of prevention against the risk of a construction project, or environmental hazards, or communication risks, among others, leads to delays, significant increases in costs, and contractual disputes, among others. Preliminary recent research results in India have shown that companies that hire construction services regularly do not systematically apply Risk Assessment practices in projects.

For this project work following literature is taken for study.

1.1. Risk Categories in Construction Projects
In the literature, risks in construction projects are divided into different categories. This process enables the grouping of risk areas, at the same time improving the transparency of analysis. In the literature, there are different proposals, a division into three major categories of risk is proposed: risk at the macro level, the risk involved in the construction market, and risk at the project level. In the first category, the following groups are distinguished: operational risks, political risks, and financial risks. In the second category, there are technological risks, legal risks, cultural risks, and risks of changes in market potential. In the last category, the model considers project management risks, technological risks, disaster risks, financial risks, contract risk, quality risks, and weather risks. It is worth mentioning that each of these subcategories is divided into further categories of risk, which in turn facilitates the building of a precise and transparent risk map. (Głady B, et.al 2015)

1.2. Identification of Risk in Construction Project
At the stage of identification, we should get the statement of the factors, which are possible to occur in the whole cycle of the project. The most frequently mentioned methods/tools used to identify risk factors are the following: brainstorming, the Delphic technique, the checklists, the experts' evaluation, the internal audit in a company, the periodic document reviews, etc. The identified factors can be presented, in the next step, in the form of Ishikawa's diagram or the risk register. (Dziadosz A and Rejment M. 2015)

1.3. Risk Assessment
There is uncertainty in everyday life, in organizations and projects, representing a clear threat to the business, but also in itself are a significant opportunity that must be taken (Hi. There is a connection between uncertainty and risk as Hillson indicates: “The risk is the uncertainty measured, and uncertainty is a risk that cannot be measured”.

Risk is a multifaceted concept, which is defined as the probability of a damaging event occurring in the project, affecting its objectives however not always associated with negative results. The Risk may also represent opportunities, but the fact that most of the risk usually has negative results has led individuals to only consider the negative side of risk. Today, Risk Assessment is an integral part of project assessment, where one of the most difficult activities is determining what are the project's risks and how should they prioritized. This is a key process and most project managers know that Risk Assessment is essential for good project management. Risk Assessment is defined as the process of identifying and assessing risk, and to apply methods to reduce it to an acceptable extent. (Alfredo Federico Serpella, et. al. 2014)

1.4. Risk Assessment in Construction Projects
In recent years, it is noticeable the increased interest in the risk problem from the perspective of the construction industry. The research areas in the Risk Assessment are focused on the identification of random factors, determination of the probability of their occurrence, and their impact on the course

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of a construction project. The problems, which often occur in terms of the risk analysis in the listed publications, (Dziadosz A and Rejment M. 2015)

1.5. Risk Assessment in Construction Project
The quantification stage (assessment, analysis) will help to determine the importance of selected factors, the probability of their occurrence, and the degree of impact on a construction project. For the mentioned methods/tools, used to estimate the risk factors, we can include the following: the probabilistic methods and the probability theory, the computer simulation, the sensitivity analysis, the multi-criteria decision-making methods, the cost-benefit. (Dziadosz A and Rejment M. 2015)

1.6. Risk Assessment – Current Issues and Challenges
Therefore nowadays, risk analysis and management continue to be a major feature of the project management of construction projects in an attempt to deal effectively with uncertainty and unexpected events and to achieve project success. Construction projects are always unique and risks raise from different sources. Construction projects are inherently complex and dynamic, and involving multiple feedback processes. A lot of participants – individuals and organizations are actively involved in the construction project, and their interests may be positively or negatively affected as a result of the project execution or project completion. Different participants with different experiences and skills usually have different expectations and interests.

This naturally creates problems and confusion for even the most experienced project managers and contractors. Cost of risk is a concept many construction companies have never thought about even though it is one of the largest expense items. Risk Assessment helps the key project participants – client, contractor or developer, consultant, and supplier – to meet their commitments and minimize negative impacts on construction project performance with cost, time, and quality objectives. Traditionally, practitioners have tended to associate construction project success with these three aspects of time, cost, and quality outcomes. The current economic downturn and challenges in a highly competitive Lithuania’s construction sector require contractors to manage risks by themselves. This paper reports the research that aims to examine the risk analysis and Risk Assessment of Lithuanian construction companies. (Banaitiene N. and Banatitis A. 2011)

1.7. Organizational Risk Assessment Capability
The sophistication of organizations on risk management practice will determine their risk management maturity level on projects. Hence, Mu et al. indicated that it is very important to properly understand the risk management capability of construction organizations instead of the high-risk nature of the construction business. Monetti, Rosa, and Rocha concluded that Measurement of the current risk management processes and cultures is the starting point in understanding the risk management capability (RMC) of organizations. These have demonstrated the importance of employing a formalized risk management maturity assessment process to measure risk management process, culture, practice, and resources.

The studies developed several risk management maturity models ‘RM3’ as tools to systematically assess the risk management maturity level of organizations on construction projects. Observed that, the risk management maturity levels of organizations vary on different attributes. For instance, an organization can have a high maturity level in risk management resources but a low maturity level in the risk management process and practice. (Salawu H. and Abdullah F. 2014)

1.8. Neural Networks-Based Risk Analysis
Neural networks are artificial intelligence tools that have proven very useful in identifying patterns in complex data structures, especially those involving nonlinear relationships. Presented results of work applying neural networks to assess software reliability, where the goal was to reduce the risk of project failure. Gave another application demonstrating the value of artificial neural network models in projects, in this case, projects involving public–private partnerships. Applications in the industry include banks utilizing artificial neural network models to analyze credit card applications. Neural network models have also been combined with test mining applications as in Growth and Muntermann, where the model was applied to financial risk in day-trading. Applied artificial neural network models to manage the risk of small enterprise default in Italy. (Desheng Dash Wu, et al 2015)

1.9. Risk-Based Decision Making
Using computer tools for risk-based decision making has been widely studied in the information systems field as a decision support system. Employed artificial intelligence to provide another application of loan-risk analysis, in this case demonstrating financial modeling in the paper and pulp industry. Omit et al provided a recent analysis specifically addressing the evaluation of value and risk in information technology investments. Such investments involve complex sets of stakeholders, leading to the need to consider organizational politics. Studied the role of political pluralism in the expansion of commercial banks in India, including consideration of risk management. Industrial decision-making not only involves multiple stakeholders/ but also multiple criteria, driven in part by the very existence of these multiple stakeholders. Provided a multiple criteria Risk Assessment technique for risk analysis in manufacturing safety. A method for consideration of risk in product development, enabling early assessment of risk and other challenges. (Desheng Dash Wu, et al 2015)

1.6 Objectives of the study
The present study has the following objectives;

1) To study and understand the nature of risk.
2) To study the Risk Assessment in housing projects.
3) To identify the factors responsible for risks.

A case of a housing project will be taken to achieve the above objectives.

1.7 Method adopted for the study
For carrying out the proposed work, the following methodology will be adopted for data collection and analysis.

1. Collection and study of literature about the dissertation work.
2. Visiting different housing projects and study the risk assessment.
3. To study the impact of the different risk factors on the progress of construction work.
2. CONCLUSION

The present study based on the analysis of different factors responsible for risk in a housing project in which we have selected Kolhapur city as our case study & the results are as follows:-

The project management risk is selected market influencing factors in creating risk in the selected construction companies, 44.45 % of respondent believe that project management risk condition does create risk in selected construction companies because there is also a risk that one or more of our current directly affect on our construction project, which would directly affect our ability to attain our operating goals on schedule and budget. Failure to secure any necessary financing on time and favorable terms could have a material adverse effect on our financial performance and stock price and could require us to change our business plans. Organization affects housing project in creating risk, 41.67 % of respondent believes that organization is responsible to create risk in their housing project only 58.33 % of respondent did not agree with this, because of this Organization need to be improved to better serve the industry. The construction industry is a complex and challenging environment, thus requiring an individual that can quickly adapt and respond to current situations and problems. Engineer and labours that are pursuing a career in construction must be trained and learn critical thinking (logical and analytical), team working (collaboration) and advanced training education are important. Construction risk generally is also seen in the selected construction companies 37.51 % of respondents agreed that due to top Construction risk create risk in construction companies. Top Management problem due to External risk time affect housing project in creating risk, 18.76 % respondent believe that External risk time is responsible to create risk in there housing project only 81.25 % respondent did not agree with this. Design errors affect housing project in creating a crisis, 15.00 % of respondent believe that Design errors are responsible to create risk in there housing project only 85.00% of respondent did not agree, with this because the Construction industry encompasses a high complexity due Design errors. The involvement of many stakeholders, long project durations and the complex contractual relationships which contributes significantly in the development process in both developed and developing countries. Therefore, the stipulation in adopting a proper procurement method is vital as it leads to the success of a building project. While project success is perceived from wide perspectives, sustainability has been increasingly recognized as a key parameter. Environmental risk affects housing projects in creating risk, 12.51 % of respondent believe that Environmental risk is responsible to create risk in their housing project, only 85.00% of respondent did not agree, with this because of the Construction industry. Right of Way risk affects housing project in creating a crisis, 4.00% of respondent believe that Design errors are responsible to create risk in there housing project only 96.00% of respondent did not agree, with this because of the Construction industry. The trends of the showing will be communicated to the selected company project and the researcher would take more research on the project, to find out the solutions to minimize the risk problem stated above this will be beneficial for Risk Assessment construction work in and around Kolhapur city.

3. REFERENCES

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