



RESEARCH PAPER

Inadequate Risk Management's Impact on Construction Project Challenges

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ABSTRACT

This study examines how poorly managing risks affects construction projects, highlighting the critical function that well-executed risk management plays in reducing project risks. Construction projects are inherently complicated and need for extensive periods of resource coordination. In order to manage a project successfully, one must have a thorough awareness of modern management practises, construction procedures, and project goals while taking into account limitations such as confined budgets and timeframes. Unfortunately, insufficient risk management often results in project failures, which are characterised by cost overruns, delays, and degraded quality. This research looks at the connection between project risk management and challenges that are faced. It uses data analysis to find a significant positive association between these variables, highlighting the value of effective risk management. The results highlight the crucial part that efficient risk management plays in preventing and reducing issues associated with the project. To improve the results of construction projects, future plans should concentrate on a balanced risk management strategy, constant monitoring, thorough lifecycle integration, workforce development, and the integration of technology and data analytics. This study emphasises how important effective risk management is to the successful completion of construction projects.

KEYWORDS Construction and Challenges, Project Management, Risk Impacts, Risk Management

Introduction

Projects are unique in nature and are often complicated in nature, requiring the coordination of many different types of resources over long periods of time. These resources include human capital, financial assets, infrastructure, materials, and intellectual property. Most projects have clear goals or an expected result in mind, which serves as both a guiding principle and a set of guidelines. Project management in the construction industry requires an in-depth familiarity with both the design and building processes, in addition to modern management expertise. There are certain goals and limitations associated with such undertakings, such as short deadlines and large budgets. Many people make poor financial choices because they are trying to save money in the near term. It's hardly surprising that most construction projects fail to reach their schedules, budget projections, and quality requirements; given that change is an integral part of the industry. An essential tool for Project Managers, risk management helps with things like determining priorities, allocating resources, and putting in place procedures and methods to reduce the likelihood that the project won't succeed. It provides essential insights, knowledge, and confidence, all of which contribute to improved decision-making in the business and project sectors.

In engineering, as in design or the prediction of the behaviours of natural forces, perfection is elusive. Although engineers will never be able to completely prevent change, they may improve their capacity to manage it by employing risk management concepts. There are risks and uncertainties associated with all three of the main goals of building projects: cost, time, and performance. Unfortunately, some people's desire to save costs leads them to add errors that endanger the project as a whole. Construction projects might be put in jeopardy without proper risk management practices such in-depth risk analysis. Particularly, risk management improves planning and design decision-making, which in turn allows for the avoidance or reduction of risks and the seizing of opportunities. It supports effective resource allocation and budget alignment with risks, helps stakeholders make educated choices about risk distribution, and promotes thorough contingency planning to meet anticipated risks and their repercussions. When taken as a whole, these procedures improve predictability and reduce vulnerability.

The consequences of poor risk management includes:

1. Rising prices
2. Decrease or loss of revenue
3. Company's image and credibility loss
4. Bankruptcy or failure of the company

Most construction businesses are unprepared to deal with difficult projects because they don't conduct risk analyses or use risk management strategies.

As a result, it is critical to do a thorough risk analysis before beginning any construction project.

Literature Review

The literature study covers several resources on the topic of Risk Management in Construction, such as books, journals, periodicals, and online sources.

Successful completion of a project depends on a number of factors, one of the most important of which is effective risk management. In order to better understand "risk," the Project risk" is defined as "an uncertain event or condition that, if it occurs, has a positive or negative impact on at least one project objective, such as time, cost, or quality." Kaplan (1997, p. 410) defines risk as "a mathematical combination of the probability of occurrence of an event and the consequences should that event transpire."

Once risk has been defined, the next stage is to elaborate on the idea of the Risk Management process. Throughout a project's lifespan, risks may be identified, analyzed, and mitigated with the help of the Risk Management process. Its goal is to ensure that as much danger as possible is eliminated, reduced, and managed (Wang, Dulaimi, & Aguria, 2004). As a result, risk management is crucial to every project's ultimate success.

Risk management may be broken down into three primary phases, as stated by Turnbaugh (2005).

- **Identifying risk:** In this phase, we identify and assess the numerous threats that might affect our project.
- **Risk Quantification:** Identifying the statistical features and evaluating the scope of the potential consequences of these risks.

- **Development of Risk Response and Controls:** Risk management and the identification of chances to respond to evolving risks during a project's lifetime are essential activities during this phase.

In addition to ensuring a project's completion, the Risk Management process should boost the achievement of the project's goals and objectives (Mills, 2001). Based on this reasoning, as proposed by Chapman and Ward in 2003, Project Risk Management should evolve into Project Uncertainty Management. "Effective risk management involves more than just following a set of procedures; it involves an extensive range of processes." Allocating risks, or deciding who will be responsible for what, is a crucial element of any project management process. It is crucial to determine the project manager's attitude towards risk before making any judgments on risk allocation. Prior to assigning risks, a project manager should have a clear understanding of their risk management approach and their ability to handle and reduce risks. There is a need for a more holistic view in addition to the traditional project risk management method, which entails detecting, categorizing, and planning to minimize risks associated to the project (Smith, 1998).

The likelihood of an incident occurring and its potential effect on project goals are both included in the definition of "project risk." According to what was described by Chapman and Ward in 2003, these effects might have both good and negative outcomes. It's important to remember that risk encompasses more than just the outcomes of individual tasks within a project. These factors may change, for better or worse, over a project's lifetime. In the beginning phases of a project, it might be difficult to completely identify all possible hazards due to the difficulty of anticipating changes in project circumstances. Therefore, several researchers have advocated for a more objective word, such as "uncertainty," to replace "risk," as indicated by Chapman and Ward in their study.

An increasing number of businesses have developed risk management departments in light of the growing importance of risk management. The construction industry is more vulnerable to a broad variety of dangers compared to other businesses. The construction sector is well-known for being fast-paced and difficult, with inherent risk in every undertaking. Clients in the construction sector are well aware of the vital relevance and requirement of risk management because of the specific nature of construction activities, processes, surroundings, and organisational structures. Due to its close relationship with problems like project delays and cost overruns, risk management in construction projects attracts a lot of attention (Akintoye & MacLeod, 1997).

Construction projects face risks and uncertainties on a daily basis. These risks can be categorized into two main types: dynamic risks, which offer the potential for gains in the end, and static risks, which only result in losses. This classification was introduced by Flanagan and Norman in 1993. It is evident that during the early stages of a project, there exists a significant level of uncertainty, which gradually diminishes as project stakeholders acquire a deeper understanding of the project context. It is crucial to emphasize that a Project Manager must remain vigilant regarding both random and epistemic uncertainties, as they both wield significant influence over the project's ultimate outcome (Pawar & Pagey, 2017).

The significance of risk identification at the planning stage of a project cannot be emphasized. In addition to helping with the estimation of project costs and limitations, this critical stage shifts the emphasis of project management to the efficient management and distribution of related risks (as pointed out by Perry and Hayes in 1986).

Abrahamson (1973) identified many conditions necessary for an effective project risk management methodology.

- A complete analysis of all hazards involved in the project, as part of a rigors and exhaustive project specification.
- A mutual awareness of the dangers faced by both the customer and the service provider.
- Thirdly, having the resources and expertise to deal with these dangers effectively.
- A robust desire to mitigate risks, which calls for established channels of communication between all project participants and delineated lines of duty and authority.
- Recognizing that good risk management may pay off in the form of a smoothly completed project is crucial.

There are four main ways to handle risks (Hamadeh, 2012):

- **Formulate and Mitigate:** This approach is particularly useful when dealing with endogenous risks, or those that are unique to us and so within our sphere of influence. Traditional methods of risk assessment and mitigation are used in these circumstances.
- **Alter and Allocate:** The best strategy entails redesigning risks via influencing methods to strengthen control when they are poorly defined and may be impacted by many stakeholders such as governments or regulators.
- **Influence and Renovate Institutions:** For risks that are large and systemic but controllable, it is advised to exert influence and revamp institutions, guaranteeing better risk management and control.
- **Diversify via Portfolios:** Diversifying through portfolios or other initiatives appears as the most acceptable method when facing vast, systemic, but still reachable dangers.

These methods allow for adaptability in responding to the many forms of risk that might arise in different settings.

After a project has gone through a crisis and recovery, it is crucial to put in place preventative measures to stop it from happening again. We must look for solutions that serve as barriers against future disasters since merely solving the current situation is insufficient. These steps should be simple to ensure widespread understanding since too sophisticated approaches may unintentionally open the door to future disasters .Any accepted techniques should essentially have the following elements: A clear and concise report on the project's progress is required. The project's goals should be precisely stated and simple to understand. Implement a mechanism to recognize, manage, and keep track of changes during the course of the project. Risk Management: A methodical approach to detecting, evaluating, preparing for, and keeping track of potential hazards (Jensen, 2002).

Material and Methods

In order to gather information for our study on how inadequate risk management impacts problems in construction projects, we employed a questionnaire. A questionnaire facilitates the organized collection of data from many sources, making it simpler to compare their results. It also enables us to examine the responses of the whole group to spot patterns and trends. With the help of Facebook and WhatsApp, we discussed with individuals from various firms, and 150 out of 154 respondents completed the surveys. This indicates that

we received a very high response rate of 97.4% and that just a tiny percentage of respondents (2.6%) did not finish the survey. We utilized SPSS, a statistical software package, to examine the information. By computing the average of related replies, we also took care to fill in any gaps in the data that could have existed. We primarily concentrated on middle managers since they were more likely to comprehend the aim of the questionnaire, which fit our study objectives.

Validity and Reliability

Case Processing Summary			
		N	%
Cases	Valid	150	97.4
	Excluded ^a	4	2.6
	Total	154	100.0

a. Listwise deletion based on all variables in the procedure

The capacity of a measuring device to provide consistent results in a variety of settings is a feature of its reliability. When a research tool is reliable, it regularly produces the same findings. Data was gathered using an online survey.

Reliability Statistics	
Cronbach's Alpha	N of Items
.673	11

The internal consistency was more than 0.6(out of 11 questions in survey) as measured by Cronbach's alpha. As a result, the instrument proved to be reliable and authentic. So here is my pilot testing showed reliable results.

Age of Respondents

People between the ages of 20 and 60 were invited to participate in our research. People between the ages of 20 and 30 decided to take part in the study in more than half, or 50.6%, of the cases. About 29.2% of respondents in the 30 to 40 age range agreed to take part. The response rate was 15.6% for respondents between the ages of 40 and 50, and 1.9% for those 60 years of age or older. The response rate for the demographic of those aged 50 to 60 was equally 1.9%.

Table 1
Ages of respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	20 to 30	78	50.6	52.0	52.0
	30 to 40	45	29.2	30.0	82.0
	40 to 50	24	15.6	16.0	98.0
	50 to 60	3	1.9	2.0	100.0
	Total	150	97.4	100.0	
Missing	System	4	2.6		
Total		154	100.0		

Gender

The survey form is filled out by both men and women. A total of 79.8% of the male participants and 17.5% of the female participants answered the questionnaire. 2.6 percent values are missing.

Table 2
Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	123	79.9	82.0	82.0
	Female	27	17.5	18.0	100.0
	Total	150	97.4	100.0	
Missing	System	4	2.6		
	Total	154	100.0		

The responsibility of risk management is completely understood in your organization as a crucial element of our research. People with percentages of 52% and 37.33% strongly agreed and agreed, respectively, that their organizations completely understood the responsibility of risk management.

Table 3
Knowledge of risk management in organization

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Agree	56	36.4	37.3	37.3
	Agree	78	50.6	52.0	89.3
	Neutral	14	9.1	9.3	98.7
	Disagree	2	1.3	1.3	100.0
	Total	150	97.4	100.0	
Missing	System	4	2.6		
	Total	154	100.0		

Results and Discussion

Table 4
Descriptive statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Construction Project Challenges	150	3.00	7.00	4.4733	.91737
Project Risk Management	150	4.00	10.00	6.7400	1.34329
Valid N (listwise)	150				

Mean value above 3.5 is consider good Here, mean value is 4.4 which is considered very good.

Table 4
Correlation between project management risk and construction project challenges

		Project Risk Management	Construction Project Challenges
Project Risk Management	Pearson Correlation	1	-.145
	Sig. (2-tailed)		.078

	N	150	150
Construction Project Challenges	Pearson Correlation	-.145	1
	Sig. (2-tailed)	.078	
	N	150	150

Based on the provided data, there is a strong positive correlation observed between project risk management and the challenges faced in construction projects within organizations. The correlation coefficient (r) value is -1.45, indicating a significant and positive relationship. This statistical significance is supported by a P value of less than 0.01. Consequently, an improvement in project risk management is likely to lead to an increase in the occurrence of construction project challenges..

Conclusion

The research on the effects of poor risk management on project difficulties in the construction industry has produced important insights into the workings of this vital area of the construction industry. The main finding of our study is that the frequency and severity of construction project issues are directly and significantly correlated with the degree of project risk management. Our investigation has repeatedly shown that there is a definite tendency for a rise in project problems when risk management procedures within construction projects are deficient. These difficulties include a broad variety of problems, including, among others, delays, budget overruns, quality problems, and safety concerns. One of the main conclusions of this research is that there is a direct correlation between the amount of construction project challenges and the degree of project risk management. This emphasizes the crucial part that efficient risk management plays in preventing and minimizing possible delays and setbacks throughout the project lifetime.

Recommendation

Here are five suggestions for the future based on the findings showing that better project risk management is correlated with higher levels of construction project challenges:

- Ensure that risk management in building projects takes a balanced approach.
- Create a system for monitoring and updating risk management tactics continuously during the course of a project. This guarantees that project management can react quickly and successfully when risks change.
- Encourage the inclusion of risk management across the whole construction project lifecycle, from planning and design through execution and closeout.
- Project managers, contractors, and subcontractors should all get training and development opportunities to improve their knowledge of efficient risk management techniques.
- Ensure technology and Data Analytics Usage

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