



# A Review on Elements of Cost Overruns, Delays and Risk Involvement in Construction Project Management

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## Abstract:

Cost and schedule overruns on construction projects are an unpleasant experience for both clients and industry stakeholders. The most major cost drivers include unforeseen site conditions, an increase in project scope, a lack of timely progress payment, and insufficient planning. On the other side, building project delays raise the project's cost. The construction business is developing complex building projects that rely on specialized labor. Various conditions must be met within the time range specified. As a result, the success of each project is determined by two critical factors: the cost and time necessary to finish the project. The adoption of project planning principles such as complete quality enhancement and supply management would result in higher performance of the team to deliver the project. The article provides an overview of the many aspects influencing cost and budget, as well as the hazards associated with Construction projects. At the end of each project, every construction business hopes to make money and profit. This is accomplished by executing projects under budget, on schedule, and with high quality. Cost overruns are a continual source of concern for project developers, and various studies have been conducted across the world to determine the reasons of these types of deviations. A literature study was undertaken in this research to identify the most significant elements that contribute to cost overruns in construction projects, as well as the methodologies used to identify them.

**Index Terms - Construction projects, cost overrun, delays in construction, risk in construction projects, etc.**

## I. INTRODUCTION

The structural trends are causing the construction sector to evaluate its readiness to handle the challenges in the optimization of construction project resources, costs, and time. The requirement for the time is to overcome the difficulties associated with construction management. The future civic constructions are more difficult to build than the ancient ones. To complete such a task, various skilled experts are required. The division of the work helps each team to concentrate specific task at a time. It not only saves the time but also enhances the quality of the work done. It contributes to the project's completion time frame while also lowering the costs involved. The research given in this paper is organized into three major sections to improve the performance of building projects.

- Delays in construction projects
- Cost overruns
- Risk involved

### 1.1 DELAY IN CONSTRUCTION PROJECTS

- There have been various instances in India where the construction sector has failed to complete a project on time. Specified scheduled timing in this situation, the victim is the consumer who paid for the job. The creation of the necessary framework may potentially cause a delay in future development plans. The enhanced technology of the equipment will aid in lowering the time necessary to complete the activities. If a trained labour is not available, the time required will increase.
- Environmental difficulties such as a lack of water, excessive rainfall, or an earthquake can have an impact on building projects because most sites do not have the right preparations in place to address these challenges. The planning of building operations aids in the organization of the resources necessary for productive work.

### 1.2 COST OVERRUN

- The capital costs for megaprojects are quite significant. In such cases, a delay in bill filing or receipt of funds leads in a severe lack of funds and, as a result, project delays.
- A cost overrun is simply an expense that exceeds the allocated amount. Most of the time, cost and time are separately linked. The rise in material costs or certain process costs may cause a delay, or the delay may cause a cost overrun on the building project.

- The cash flow must be maintained throughout construction operations since labour pay and material costs must be paid on a continual basis in order for the job to continue.
- If the cost estimation is incorrect, it will undoubtedly cause problems because the real cost of the project may be quite high in that situation.

### 1.3 RISK MANAGEMENT IN CONSTRUCTION PROJECTS

- Every day, the construction business faces a variety of difficulties. Construction projects are at risk owing to rivals, danger of investment recovery, poor earnings, disagreements, and safety difficulties, among other things. Planning for the project will be done based on the potential conditions and the company's risk-taking capabilities.
- The identification of potential problems that may arise during the project's life cycle, from inception to finish. The strategy considers the potential consequences of the situation if it emerges.
- The extent to which interventions may be done is determined by the impact. Finally, the project's contingency plan is completed. The project will only be successful if the risks involved and potential concerns are fully considered at the project development stage. To solve the problem, all alternative solutions must be investigated, and a feasibility study must be conducted.

## II. LITERATURE REVIEW

**Kyung-Tae et al. (2022)** says that the number of international projects grows, managers' competencies should be understood through dealing with hazards. Though fully understanding the perception of the clients or site labours was difficult, this study is important in that the conceptual gap was narrowed by numerically comparing the difference between managers' risk perception and actual risk cost. It would serve as a guidance by concentrating on certain issues with significant impact for educating managers at foreign sites.

**Marsha Enrica et al. (2021)** from their study it shows that there is usually a final cost overrun on the completion of building projects across the world. Cost overruns arise when a project is faced numerous risks as a result of expected preparations to reduce the risks, which causes delays in the implementation of the work sequences. This is undoubtedly a significant issue in establishing construction project budgets and a crucial task for both owners and contractors, thus it should be controlled to reduce or avoid negative outcomes. The goal of this literature study is to outline hazards that have resulted in cost overruns during the last 10 years.

**Rafia Akhter et al. (2021)** they described that the Cost overruns and delays are the most typical elements in building projects, according to this survey. Throughout the study, attempts were made to identify the most significant/critical components that were primarily impacting building projects. As a result, a questionnaire survey was created and distributed to stakeholders. According to the findings of the study, many respondents were primarily concerned with completing the project under budget in order to minimize/control cost overruns.

**Gaurang Ghule (2020)** explained the current issues that the construction industry is experiencing are poor profit margins, competition from many stakeholders, project completion within specified time and cost, and an overall rise in quality. As a result, it is critical to employ procedures in construction that can assist in exceeding the demands of the client while reducing cost and time and improving project quality.

**Hiten M Gawad (2020)** he suggested that the qualitative multiple case study aims to understand ways for reducing cost overruns and scheduling delays. The study has practical implications for construction management. Reducing cost overruns and schedule delays is a beneficial strategy for improving the performance of construction project firms and improving people's lives. Managers may increase the sustainability of their businesses by following the current techniques presented in the literature and the conclusions of this study.

**R Susanti et al. (2020)** from their study it shows that the following 15 variables that have been observed to cause cost overruns in development projects site accessibility delay; site conditions; social site conditions; change request; adjust; subcontractors' or potentially merchants' exhibition; approval delay; incorrectness in planning, booking, and asset arranging; materials value variances; rules and guidelines; proprietor's extra prerequisites; expansion; delay in instalment; feeble income and poor c From the total of 15 factors identified, both owners and workers for hire agreed that "Revise" was the most compelling factor for cost to invade development projects in Indonesia.

**P.ASMITHA (2019)** described that most building projects in India are impacted by cost overruns and delays. The most important factors are environmental circumstances, weather conditions, order fluctuation, and labour availability. As the outcome demonstrates, influencing variables more study is needed to verify these findings. Owners recommended for projects from various geographical locations or states, as well as different. Finally, the authors advise that during the building planning stage, more effort should be put into project planning, preparation, scheduling, and costing.

**Jomin P Jose et al. (2018)** explained that a cost overrun occurs when unexpected costs exceed projected amounts due to misunderstanding of the real cost during budgeting. Cost overrun should be distinguished from cost escalation, which refers to the expected increase in a budgeted cost as a result of factors such as inflation. The literature review found 27 key elements that contribute to cost overruns.

**Ayman Abdul Salam Ali Khalleefah et al. (2017)** according to their study projects that are delayed are either expanded or pushed, accruing higher costs. As a result, delays in construction projects produce dissatisfaction among all parties involved, and the project manager's primary responsibility is to ensure that projects are finished within the planned time and cost. Project management tools and strategies play a vital part in project management. This issue is not limited to affluent nations it affects the majority of emerging economies.

**Ali Al-Keim (2017)** says that the goal of this qualitative multiple case research was to investigate senior management's tactics for reducing cost overruns and timetable delays. The findings has important implications for top construction managers. Reducing cost overruns and schedule delays is a beneficial strategy for improving the performance of construction project firms and improving people's lives. Senior managers may increase the sustainability of their businesses by following the most recent tactics published in the literature and the conclusions of this study.

**Abderisak Adam et al. (2017)** says that the goal of this paper is to investigate the impact that cost overruns and time delays have on large public construction projects in order to clarify how previous and current research regard factors that cause cost overruns and time delays in large public construction projects. The use of trend data, as depicted in a kiviati diagram, to indicate how the relevance of different ranking variables generating cost overruns and time delays has evolved over time.

**Ammar Ali (2018)** explained that the Cost, time, and quality are used to assess whether or not it was completed within the required cost, time, and quality. However, the construction business is covered with projects that have major time and expense overruns. Delays affect project success in terms of time, cost, quality, and project performance and success. In general, project success is characterised by safety. The impacts of building delays do not affect simply the construction business, but also the general economy of a country.

**Vaibhav Y. Katre et al. (2016)** described that overruns in both time and money have been a constant issue in the construction business. Also, from a financial point of view, if the owner fails to pay for finished work, it will have an impact on the project's future work. Contractors' poor planning and scheduling have a greater impact on project length, and a lack of knowledge will impair decision-making skills, resulting in rework and finance issues. Improper drawings by the consultant, late revision of the specification, and insufficient communication with the contractor all contribute to project time overruns.

**Swapnil P Wanjari et al. (2016)** says that delays and cost overruns are regular occurrences in projects across the world. However, issues are exacerbated in underdeveloped nations. According to the MOSPI research, 235 projects out of 410 in India had significant cost overruns owing to a variety of issues. A brief questionnaire with 15 key criteria was administered. This paper also includes suggested frameworks developed following discussions with a significant number of building professionals or experts.

**Vaibhav Y Katre et al. (2016)** they illustrated that nowadays, projects are highly advanced, requiring large contract values, multi-discipline participation, more specialized labour, a tighter timeframe, proper quality requirements, and so on. Finally, money and time are two critical elements that influence project success. The research focuses on several Design and Build projects with complex risks and set contract sums (Lump sum). As a result, there is no similar research to address this issue in the Indian building business.

**Mulenga Mukuka et al. (2015)** explained that the effects of development plan invasions from writing, time overwhelms (augmentation of time), cost invade, arguments, interference, case, all-out abandonment, and privileges were identified. According to the poll summary obtained from the according to respondents, the best ten known impacts of development projects cost invasion in Gauteng, South Africa are deferral of time, cost overwhelms, loss of benefit, questions, low quality of work because of rushing the venture, make pressure on the customer, speed increase misfortunes, terrible standing with compression group, claims, and postponement in getting income by the customer.

**Nabil Al-Hazim et al. (2015)** says that the majority of road construction projects in Jordan are delayed and cost overruns. Many documents and final reports for specific projects were examined. The results suggest that the majority of the true components are: terrain characteristics, climate conditions, variety of the request, and job accessibility. Projects from diverse topographical destinations and proprietors are offered for future investigation. Furthermore, it is recommended that many aspects be noticed that contribute to the development expense, and schedule overwhelms in broad daylight job projects.

**Abdussalam Shibani et al. (2015)** According to the findings and analyses, several crucial success elements are critical for the performance of building projects and the prevention of cost overruns. It is important to note that these crucial success elements have an impact on construction project objectives such as budget, performance and quality, and completion of the project on time.

**Shanmugapriya et al. (2013)** explained that the Time and cost overruns are a major issue being addressed by large development undertakings in India. It is the product of several components discussed in this study. On 76 and 54 aspects on schedule and cost invade, respectively, an aggregate of 70 cases was considered significant and evaluated measurably applying the overall significance list technique. As a result, this highlights the need of paying close attention to these factors in order to avoid time and expense invasions.

**D.A.R. Dolage et al. (2013)** has investigated and makes references to all of the gatherings for proposing factors causing time to overwhelm offered expert assessment. The references are to building development initiatives undertaken by the DOES. Because the administration frameworks and operations of all public authority organizations in Sri Lanka are equivalent, the recommendations might be substantial with few revisions by other government foundations.

**Dr.Narayanan Sambu Potty et al. (2011)** says that the factors that are causing Time delays and expense overruns are viewed as a result of a few gatherings associated to development, and a survey is planned to examine the rating and positioning of the element. The downside factors chosen from the issues management discoveries are material delays, drawing and proposition discounts by the advisor, and bad weather. This objective and reasonable outcome will provide awareness in the management of risk-causing elements. Either accept if it is within your capacity or be prepared with the appropriate risk response strategy for the undertaking.

G.Ojagboro et al. (2002) explained that in Nigeria, construction delays have grown common. It is critical to raise awareness of the extent to which delays might affect project execution. This article detects, examines, and assesses the consequences of construction delays using a questionnaire and an empirical technique. The data revealed that time and expense overruns were common consequences of delay. Delay had a major impact on the cost and timeline of the 61 building projects assessed

### III. CONCLUSION

Construction project delays result in cost overruns for the project. If the cost of the project exceeds the expected cost, the project may collapse completely because most agreements are based on the projected cost of the project. The authors provided an outline of the many elements influencing construction project delays, cost overruns, and risk factors. To overcome the delays, the construction planned and management plays a key role. Chain management and quality management are critical strategies to follow in order to enhance project completion while being cost effective. The greatest method to avoid cost overruns is to plan for them before beginning a project. The more detailed and accurate your estimations, the more probable it is that you will stay inside budget. An effective risk management plan can account for all project hazards.

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