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Analyzing The Causes of Project Failure and Cost Overruns in Building Construction Industry by Using a Mixed-Methods Approach

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ABSTRACT

This study investigated the reasons for project failures and cost overruns in building construction. The building construction industry is well known for chronic issues such as fragmentation, cost overruns, poor working conditions, and insufficient quality, all of which result in project failure. Project failure and cost are the two most essential indicators of success in a construction project because they have an equal impact on all project participants, both favorably and negatively. These problems have been evident for many years across the global construction industry, requiring the identification of the primary causes to address these challenges. The use of both quantitative and qualitative approaches was important, as it made it easier to accomplish the overall goal of solving the problem because quantitative data were collected via surveys and qualitative data were collected through interviews. Data was gathered from 104 team members in Pakistan's building construction industry. The top five reasons for project failure were poor project management, poor design, frequent design changes, design errors, bureaucracy, corruption, poor quality, and poor site management. The top five reasons for cost overruns were poor start-up planning, poor project cost estimation, poor weather conditions, political situations, and the economic instability of the country. Minimizing these factors can contribute to a greater probability of project success and overall improvement in the construction industry.

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1. Introduction

Project failure and cost overruns are significant challenges in building construction projects, particularly in developing countries. Studies across Asia have identified poor site management, improper planning, and material price fluctuations as critical factors (Amini, Rezvani, Tabassi, & Malek Sadati, 2023). In India, residential building projects frequently experience cost overruns. Researchers use the relative importance index (RII) to prioritise contributing elements (Jadhav, Konnur, & Patil, 2020). A survey of higher education building projects indicated that 93 percent incurred cost overruns, usually between 5 and 10% (Alhammadi, Al-Mohammad, & Rahman, 2024). Bid review and project planning are two mitigation methods that can have a favorable impact on project efficiency and success (Iqbal,

Nawaz, Ali, Osman, & Hamza, 2024). Several studies have investigated various aspects of building construction. Allaoui, Guo, and Sarkis (2019); Marcher, Giusti, and Matt (2020) both highlight the need for decision support systems and environmentally sustainable techniques in the construction phase. Jiao et al. (2023) enhances the importance of technology in construction systemization, especially in structurally appearing intelligent construction, new forms, additional automated construction systems and a higher level of monitoring technology. Callanan and Perri (2020) tackle the labor shortage in the building trades, implying that career counsellors and schools can play an important role in encouraging young people to choose construction careers. Education and training programs on employment imbalances are important for maintaining the construction workforce and guaranteeing that new projects will have the appropriate manpower.

These studies demonstrate the multidimensional character of project failure, emphasizing the importance of a thorough knowledge of the underlying causes. Various variables lead to project failure and cost overruns in construction projects. These include poor project management, such as inaccurate cost estimation and ineffective working relationships Albtoush and Doh (2019), as well as specific issues like fluctuating material prices, cash flow problems, and poor site management (Idrees & Shafiq, 2021). Other significant causes include frequent design changes, a lack of contractor experience, and poor material management (Abdel-Monem, El-Mohr, & El-Dash, 2022; Aljohani, 2019; Alshihri, Al-Gahtani, & Almohsen, 2022). To overcome such challenges, it is therefore important to have the right planning process, communication process, and management procedures for handling risks and changes that occur in the various project phases. In the context of the education sector in Ghana, financial problems, unrealistic contract durations, and client-initiated variations are also key factors (Durdyev, 2021). These research outcomes confirmed that construction project problems are not local and not simply having different forms, but are global and therefore complex in terms of problem solving, requiring a world perspective of initiatives. Several factors play out in construction projects that lead to project failure in building construction. According to Gupta and Kumar (2020), inadequate material choices, unfavorable equipment management and staff absenteeism are cited as significant contributing factors, whereas, Zahoor (2023) points out factors such as poor site organization, scheduling, and material costs. According to Canales, Mora, Arrieta-Castro, Moreno-Natera, and del Savio (2023), legal issues, technical mistakes, and bad management are other factors that hinder such projects especially in public projects. The following papers by Asiedu and Adaku (2020); Nadeem, Jiskani, Urwat, Uddin, Akhtar, and Khokhar (2023); Waswa (2022) establish how. ”

It also important to point out that the sources used in the literature review for the proposal are recent, which means that the materials provide timely and relevant information. Some of these different aspects are: financial implication, project details, business playing environment and regulatory factors, and organisational aspect covering structures, processes, and values. Incidents of these factors have implications in the management and control of costs within a project. Tayyab, Furkhan, Rizwan, Jameel, and Chadee (2023) have listed some factors including change orders, project delay and increase in cost of material as some of its major factors. It also known from the following sources: H. Doloi (2013); H. K. Doloi (2011) which shows that problems in cost estimates and control is also a major problem. Thus, according to the works of Gunduz and Al-Naimi (2022), these challenges highlight the need for quality assurance, selecting a professional workforce and having a good working relationship between parties. The above facts imply that in order to construct building with minimal or no overcost, rigorous effort in management and control of costs of a project needs to be inculcated. Consequently, it is important to effectively and efficiently implement the essential elements for a project management structure, in an effort to minimize these risks and thereby increase the probability of success. Shinde and Minde ; W. Watanabe, Shafiq, Ali, Nawaz, and Nazeer (2024) provide insight into the implementation of major factors such as delayed decisions, ineffective scheduling, and higher costs of materials and machines. The third factor is another aspect of efficient time management which is the right decision making at the right time The thing here is that time schedules should be controlled as effectively as the continuous work process because time wastage is not tolerable (Al-Balawneh & Tarabieh, 2024; Widiaputra & Arumsari, 2021). According to Sohu, Nagapan, Memon, Yunus, and Hasmori (2018), the most common challenges relate to financial issues such as,; slowness in information sharing, and issues concerning payments. Others include; poor planning, fluctuation in material prices, and issues of productivity according to Albtoush and Doh (2019); SOLOMON (2022). Based on these research studies, it can be ascertained that ineffective management, erroneous designs and, of course, poor finance

issues are leading causes of project failure and excess cost in building construction, and thus, building construction needs better risk management and better planning strategies. This research has illustrated that more research works are required to fully and comprehensively understand causes of project failure and cost overrun in the building construction sector. Thus, the following are the research questions for this study: Thus, the following are the research questions for this study:

1) Identify and discuss the main causes of project failure in building construction projects.
2) What are the causes of cost overrun in building construction industry?

Lack of proper site management, failure in planning and scheduling, the instability in construction material rates, inexperience, and a worst economic situation are considered as the most common factors that contribute to cost overruns in construction projects in Pakistan. further categorized these factors according to the stakeholders, country, and project type, the key causes we identified include inflation, inaccurate cost estimates, ineffective cost control, and changes to the work scope. concentrated on high rise building projects with reference to India, have highlighted key causes of variation including change orders, construction delays, material price rise, market fluctuation and rework. Repetition of work, variation of work schedule, and other delays are some of the causes which lead to overburdening (Kamal, Abas, Khan, & Azfar, 2022; Memon, Memon, & Soomro, 2020; Sohu, Ansari, & Jhatial, 2020). Design faults, political instabilities and contract non-performance especially in terms of delayed payments to contractors are also to blame. In Pakistan, some of the causes of delays include the following; Inadequate and unrealistic planning and scheduling of construction projects are the major causes of delay in Pakistan (Hasmori, Memon, & Ismail, 2023). These findings underscore the significance of effective contracting and proper risk management measures in the building construction industry.

2. Literature review

2.1. Project failure

Project failure is a very broad and general topic and there are many reasons that can lead to its happening. Among all the identified project success factors, communication is considered one of the most important because it enhances cooperation of all the related parties in every phase of the project. highlights the paramount importance of communication in projects as well as stressing the importance of not miscommunicating and not causing unnecessary problems through delay of updates. Therefore, lack of communication can cause conflict that can lead to late completion or even failure of the deliverables of the project. (Stemn, Bofinger, Cliff, & Hassall, 2018) Among them, Marrewijk, Stjerne, and Sydow (2024) first put forward the "Phoenix phenomenon. " It is argued that a project can be successful and at the same time be a failure. emphasizing a retrospective and prospective evaluation of the identified problem. Concerning data science projects, Tulla et al. (2024) identified data, algorithms, and processing power as critical factors determining the success of data science projects. Altogether, these works stress the significance of the communication, diversified, and careful evaluation of significant aspects, which would contribute to the avoidance of failure when managing projects. Moreover, frequent reasons in software projects are mainly due to inadequate quality assurance and control and ineffective change control (Hönel, 2023). Lack of planning and poor assessment of risks are the significant causes of construction project failures (Akinradewo, Akinshipe, & Aigbavboa, 2022). In projects, failure to identify and manage the various stakeholders timely and unattainable timelines lead to project cancellation and the occurence of the marginal cost trap. However, failure is not entirely devoid of positive characteristics, as it may give rise to resources for learning when individuals manage to reduce their failure aversion (Dahlin, Chuang, & Roulet, 2018; Eskreis-Winkler & Fishbach, 2019).

2.2. Cost overruns

Cost overruns the difference between the actual expenditures and the expected costs are always an issue in construction projects (Ariyawansha & Francis, 2022). These can arise from various conditions such as inflation, cost estimates that are wrong, poor cost management, and variation in the work to be done. Some of the factors as per the study done during COVID-19 outbreak for the UK industry are labor productivity, supply chain management and site accessibility which resulted in cost overruns as identified by Adepu, Kermanshachi, Pamidimukkala, and Nwakpuda (2024); Omotayo et al. (2022). The institutional framework, particularly the absence of a learning process and the use of poor input for calculating the project

rate of return, has also been noted as playing a significant role in cost overruns in Swedish road and railway projects. In construction activities, aspects like poor contingency management, unfavorable ground conditions, and challenging characteristics of the construction projects, among others, also cause cost inflation (Fareed, Nawaz, Iqbal, Ummara, & Hamza, 2024) Cost overruns in building projects are a major concern, and a variety of variables contribute to their occurrence. However, variations in the cost of materials and problems with subcontractors are also compelling factors in developing effective Project management Processes and documentation for housing construction projects. Leu, Liu, and Wu (2023) identify poor estimation, design changes, and scope creep as major causes, whereas Gamal, Abd Allah, Maged, and Enieb (2023) present a real-time hidden Markov chain model for cost overrun risk prediction. Also, Abas, Khattak, Habib, and Nadir (2022) show the importance of stakeholder engagement to ensure that there is communication harmony to avoid mistiming and thereby prevent excessive costs (Ali, Ahmad, & Hussain, 2020). These studies collectively underscore the need for accurate estimation, effective project management, and improved cost control measures to mitigate cost overruns. Applying strict project management procedures and using IT tools for monitoring projects during their realization can raise the level of cost control and, therefore, increase the probability of project success.

2.3. Causes of project failure

A range of factors contribute to project failure, with human error being a consistent theme (Pinto, 2022). In the construction sector, schedule disputes, cost overruns, and government delays are primary failure factors (Sajjad et al., 2024; Waqar et al., 2023; W. C. Watanabe, Shafiq, Nawaz, Saleem, & Nazeer, 2024). Similarly, in the public sector, administrative issues, financial plans, market risks, and technical errors are significant factors (Nisar & Asif, 2023). The impact of failure aversion on learning from project failure is also an important topic, with individuals' attitudes toward failure impacting their ability to learn from it (Amore, Garofalo, & Martin-Sanchez, 2021). Despite that, there are several factors that have potentially adverse effects on the project’s execution and Because overall risk management is a critical component of a project's risk management approach, there is a need for more effective ways of risk management to be applied with a view to reducing the negative impact of the above factors.

2.3.1. Poor project management

A range of studies have identified various causes and implications of poor project management. Sarangee, Schmidt, and Calantone (2019) emphasizes the role of human error, particularly in schedule slippages, and suggest that recognizing and correcting these behaviors can improve project delivery. Suwarno and Jaya (2022) focuses on the software development context, proposing a project management system based on the Scrum method to enhance time management and resource allocation. Lyneis and Ford (2007); Tayefeh Hashemi, Ebadati, and Kaur (2020); Zoghi and Kim (2020) highlight the impact of poor cost control and inaccurate estimates on project performance, with the former focusing on construction projects and the latter using a system dynamics approach to predict performance based on the causes of claims. These studies collectively underscore the need for effective project management strategies to address human error, enhance resource allocation, and improve cost control. Thus, application of advanced project management tools and methods, such as earned value management (EVM) and critical path method (CPM) can as well enhance project effectiveness and minimize risk of failure.

2.3.2. Poor design, frequent design change, and design errors

Several research works have acknowledged the effects of design deterioration, design fluctuation and design failure in constructions. Mishra and Aithal (2022); Shoar, Chileshe, and Payan (2022) point to design modification and inadequate design as strongly associated with time proliferation, while Shoar, Chileshe, and Payan (2022) propose design change and design weakness as critical cost inflation influencers, with Mishra, 2022 adding non-conforming design, mistakes, and issues as important contributors to time inflation. According to Dimaculangan (2023) there is a growing concern of poor quality work in building projects especially in aspects like concrete, plaster, and foundations. Iino and Nakao (2021) offer an important cautionary remark with regards to design of structure where poor design can result in disastrous failure as demonstrated in the occurrence of Fukushima Nuclear Power Plant-1, Fukushima-1 failure. These studies together suggest that design teams should have improved ways of sharing design information among themselves, and that before designs are finalised, measures should be taken to check for interferences and conflicts.

2.3.3. Bureaucracy and corruption

Research on bureaucracy and corruption has revealed a variety of factors that influence corrupt behavior among bureaucrats. Harris, Meyer-Sahling, Mikkelsen, Schuster, Seim, and Sigman (2023) found that personal and political connections play a significant role in shaping the identity and incentives of bureaucrats, leading to different forms of corruption. Irwandi and Ilhamsyah (2022) emphasized the effectiveness of anti-corruption bureaucracy in eliminating bureaucratic disorders such as extortion, corruption, collusion, and nepotism. Dahlström and Lapuente (2022) discussed the impact of bureaucratic organizations on corruption, with legalistic and Weber bureaucracies being associated with lower levels of corruption. Singh & Karn (2012) emphasized the role of transparency in public governance, particularly through the Right to Information Act in India, in eradicating administrative corruption. These studies collectively underscore the complex interplay of personal and political connections, bureaucratic organization, and transparency in shaping corrupt behavior within bureaucracies. These concerns can be addressed if the governments introduce effective measures against corruption, demanding transparency of the contractors' activities.

2.3.4. Poor quality

Can and Gozgor (2018) discuss the impact of low-quality exports on the export growth of developing countries, emphasizing the need for trade policies to incentivize export-quality upgrading. Amoah (2023) identifies various causes of poor quality in government-constructed social housing and proposes a quality management framework to address these issues. Imposing and maintaining international quality standards and conducting regular audits are methods that can contribute to the enhancement of the quality of construction projects and thus decrease the rate of failure.

2.3.5. Poor site management

A range of studies have identified various factors contributing to poor site management in construction projects. Lai, Wong, and Yong (2023); Olanrewaju and Lee (2022) both highlight the role of inadequate site management, poor workmanship, and non-compliance with standards as key determinants of poor quality in building projects. Cifuentes-Faura (2024) further underscores the challenges in debris management, particularly in the aftermath of natural disasters, which can exacerbate these issues. These studies collectively emphasize the need for effective site management, including labor resource management, to address these challenges and improve overall project performance. Although principles such as lean construction and total quality management (TQM) are commonly used at construction sites, it is argued that their introduction in site work can enhance the effectiveness of the construction site work and therefore enhance the realization of enhanced results.

2.4. Causes of cost overruns

The following are some of the causes of cost overrun in the building sector: Some of the critical issues are changes in the requests, construction of delays, and an increase in the cost of materials. In Malaysia, some of the causes include: negligence in experience, slow flow of information, and inaccuracies in the bills of quantities (Rahman, Memon, Karim, & Tarmizi, 2013). In infrastructure projects, design errors political instability and delayed payments to the contractor can lead to disputes. indicate that delayed estimation, design modifications, and scope inflation are potential factors in the Indian context (Banobi & Jung, 2019; Omran, Saleh, & OMRAN, 2023). Based on these studies, there is a need to enhance the management of projects, better estimation, and communication to enhance control of excessive costs in the building sector. Moreover, using modern products like building information modelling (BIM), plus the effective project management software reduces the possibility of having an issue with cost estimate and project schedule.

2.4.1. Poor initial planning

Project delays and rise in costs are some of the major issues that are affecting the building industry, and these are caused by issues to do with sustainability (Scherz, Zunk, Steinmann, & Kreiner, 2022). These problems are compounded by a failure in calendar management and budget distribution and the application of low-quality practices at construction sites (Fedotkina, 2023; Habibi & Kermanshachi, 2018). These issues could be avoided by using good planning strategies and of hiring qualified planner initially in the project on solving for all risks and other manageable factors within the project time and cost.

2.4.2. Poor cost estimation of the project

Several researchers have explored the challenges and various possibilities regarding the challenges that emanate from poor cost estimation in construction projects. Both Sun et al. (2022); Tang, Gong, and Liu (2022) particularly stressed that cost estimations are crucial with inflation, inaccurate estimates, and the poor control of costs as the potential root causes of cost overruns. Reilly (2005) also supports the idea of a suitable risk management plan to enhance cost estimability while also adding the concept of integrating machine learning algorithms for estimating cost and time for IT projects. These studies collectively underscore the significance of accurate cost estimation and the potential of various techniques and technologies for addressing this issue. Also, using the continual evaluation method, where estimates are revised with real time data at shorter intervals, could give a more accurate picture of costs by project.

2.4.3. Poor weather conditions

The building sector is facing significant challenges due to poor weather conditions, particularly increased rainfall volatility. This is further exacerbated by the need for energy retrofitting in existing buildings to improve thermal performance and reduce carbon emissions (DAVOU, 2008; Downey, Lind, & Shrader, 2023). As a result, there is a pressing need for effective, long-term solutions to address these challenges and ensure the sustainability of the building sector. A better understanding of conditions that are attracted by construction activities and using different meteorological technologies and constructing according to them might decrease the impact of adverse weather factors to some extent.

2.4.4. Political situations

The political landscape in 2022 will be marked by significant developments in various countries. In Portugal, the ruling Socialist Party secured a majority in the national parliament, leading to the formation of a new government (Magone, 2006). The situation around Taiwan has escalated, with the possibility of a local war in the next few years due to increased military activities and toughened rhetoric (Mkrtchyan, 2022). In France, the traditional left-right spectrum has given way to a new quadrupole axis, leading to a reconfiguration of the political spectrum. The society in France is further fragmented, with Emmanuel Macron maintaining support from the high classes and Marine Le Pen consolidating her position on the right flank (Lorimer & Herman, 2023). Awareness of the political environment and integration of political sensitiveness in construction project planning are crucial to avoiding and managing risks arising from political instabilities.

2.4.5. Economic instability of the country

The year 2022 has brought significant challenges to the global economy, particularly in Russia and Indonesia. Russia has faced a series of crises, including the pandemic and geopolitical tensions, leading to the need for a complete overhaul of its economic mechanisms. In Indonesia, the economy has shown a sign of recovery from the pandemic but is now facing increased volatility and uncertainty, with potential macroeconomic challenges on the horizon (Priyagus, Rahmawati, & Darma, 2024; Pyankova & Kombarov, 2023; Wahyudi, 2024). Both countries raise the issue of structural transformations and changes in policies for managing the economic conditions of 2022. Budgeting plans and having an emergency budget for construction projects can help reduce the impacts of vices' and force moods in the construction industry financial markets.

3. Research Methodology

Data is collected in this study using the mixed method which is also referred to as the triangulation method. The strengths of this method involve the combination of quantitative data and qualitative contacts with the studied problem. A concurrent mixed method approach is employed where both qualitative as well as quantitative data were collected simultaneously and analyzed statistically to determine the major factors contributing to project failure and cost overruns in the building construction industry of Pakistan. This paper will also establish that the use of mixed methods research that involves the use of both quantitative and qualitative data has significant benefits in the research process. Single-method techniques are less comprehensive compared to this technique because it provides both depth and scope of information acquired (Almalki, 2016). This approach has been used in various research studies, for instance, in studies on cost overruns in projects in Pakistan Sohu, Abdullah, Nagapan, Rind, and Jhatial (2019); Sohu, Memon, Nagapan, and Bhatti (2018) and, studies conducted to establish the impact of microfinance (Ghalib, 2016). The use of quantitative surveys and

qualitative interviews enable the researchers to establish the certain drivers and ways by which certain situations, such as a cost overruns, can be managed (Sohu, Memon, et al., 2018). It also minimizes sample selection biases and offers a greater understanding of intricate social phenomena, including poverty alleviation via microfinance (2017: Ghalib). The analysis of the qualitative data is also useful for enhancing the understanding of the target research objectives and identifying key directions for decreasing the number of failed projects and costs in Pakistan. Qualitative research can be done in parallel with quantitative research for example, to offer further check or affirmation to the study findings.

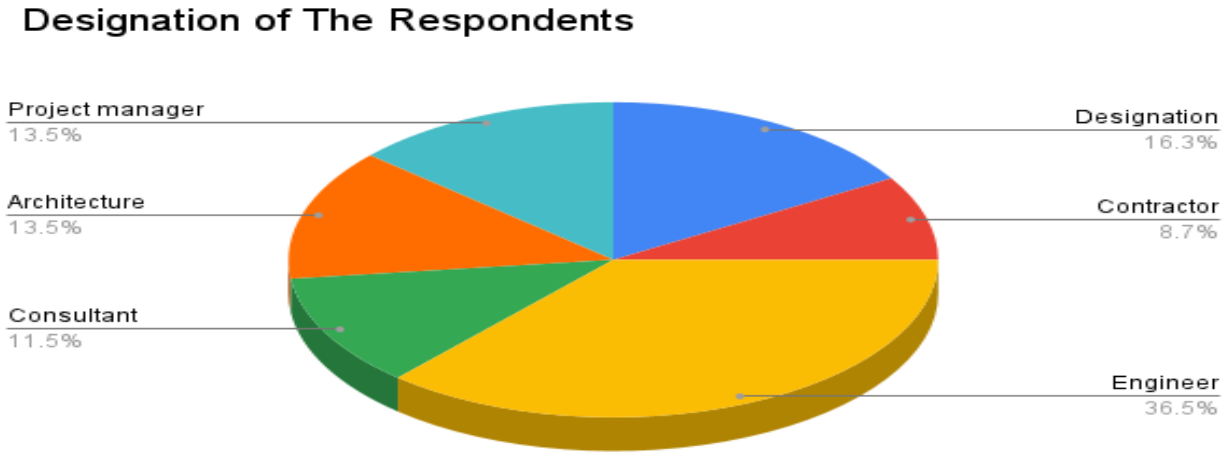
Qualitative method employs, highly experienced construction professionals in Pakistan for semi structured interviews to validate the results and get an explanation for the current status of construction industry research objectives The quantitative research employs generalized questionnaire survey to statistically test the research questions (Alasmari, 2020; Sharma, Bidari, Bidari, Neupane, & Sapkota, 2023). A questionnaire was used to gather quantitative data from 150 randomly selected professional samples in the construction industry, including project managers, structure designers, contractors, consultants, and engineers. The questionnaire was distributed via personal email and professional networking sites, and 104 (69.3%) of the samples completed it. Such a high response rate enables the achievement of a statistically meaningful sample size, which is critical for confirming the study's findings. The information acquired from the viewpoints of numerous project participants provides a more complete and fair picture of the study issue. A snowball or chain-referral technique was then used to conduct personal interviews with eleven experienced construction professionals from various well-known and established firms at the same time. This is especially true given the snowball technique's effectiveness in identifying important informants who may provide useful information on construction industry practices and issues. The interviewees were from diverse project teams, including two project managers, three structure designers, two architects, one contractor, one consultant, and two engineers. In this study, a semi-structured interview was used, with staff receiving a cover letter and questions of interest before the interview, allowing for discussion of any research-related questions. With a 100% response rate, the interview provided a descriptive and critical evaluation of the research purpose. This strategy not only covers all of the necessary data, but it also aids in understanding all of the elements that have contributed to project failures and overspending.

4. Result Analysis

4.1. Questionnaire analysis

Figure 1 depicts the 104 questionnaire responses gathered from a varied range of construction experts in the sector, including project managers, structural designers, contractors, consultants, and engineers. Responses were received from personnel associated with various project entities, such as project managers (13.5 percent), structure designers (16.3 percent), architects (13.5 percent), contractors (8.7 percent), consultants (11.5 percent), and engineers (36.5 percent), which help achieve a balance in terms of project delays and cost overruns in Pakistan.

Figure 1: Designation of the respondents



This diversified engagement ensures a cross-sectional approach to the industry's concerns because the same issues arise across different roles. Furthermore, study participants were asked to provide information on their formal education level, as depicted in Figure 2. Matric, intermediate, bachelor's, master's, and PhD degrees were utilized to calculate years of education. Regarding the educational background information, it can be stated that the respondent pool is highly qualified; a considerable number of participants have a university degree, which corresponds to the focus on the educational sector prevailing in the countries of the region. The majority of respondents (n = 40) had a Master's degree, accounting for 41.6% of the total sample, while bachelor's degree holders (n = 34) accounted for 35.36 percent. Furthermore, the mainstream respondents (n = 70) had 1-10 years of experience.

Figure 2: Designation of the Qualification

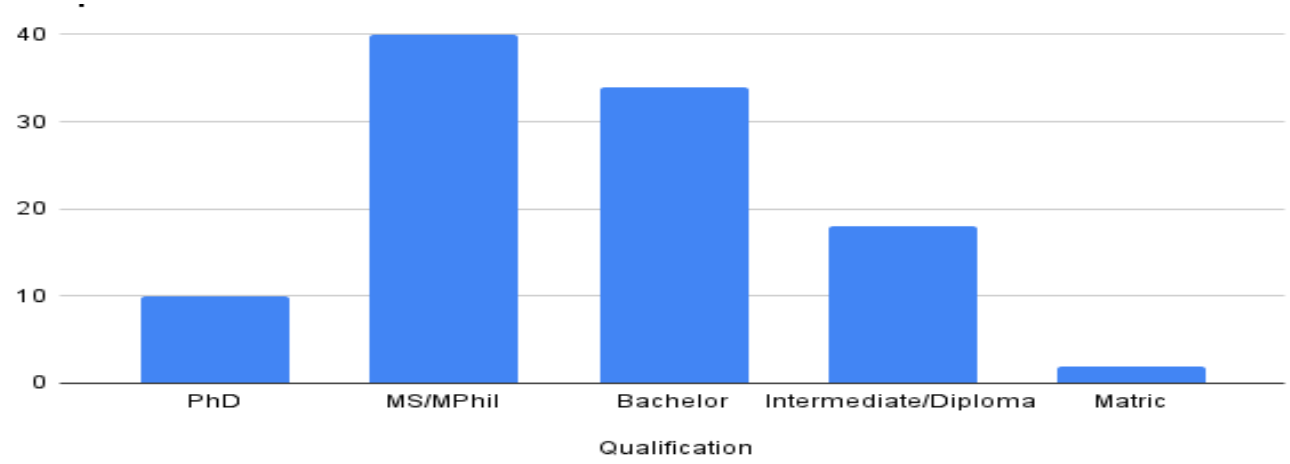
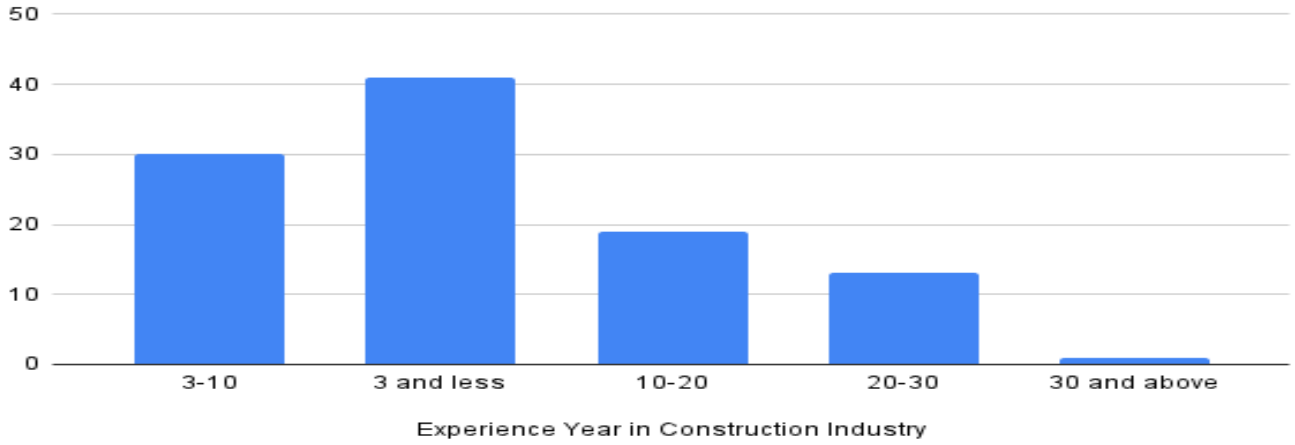


Figure 3: Experience of the respondents



The questionnaire analysis of 41 major causes of project failure and Cost overruns derived from the literature review will be graded on a Likert scale from 1 to 5 depending on their impact (where weight '1' implies very low impact and '5' represents very high impact), taking into account the current scenario in Pakistan's building sector. Table 1 depicts the 21 key causes of project failure identified by a literature review. The advantage of this approach is that the relevance of each element is analyzed in a systematic manner, providing insight into the value of each aspect in relation to the others. The response was determined using the weighted scoring approach to determine the average ranking score using the formula provided. The average ranking score is calculated as ¼ X1W1 þ X2W2 þ X3W3… þ XnWn/Total, where 'X' represents the number of responders and 'W' represents the weightage of the ranked position.

Table 1: Causes of project failure

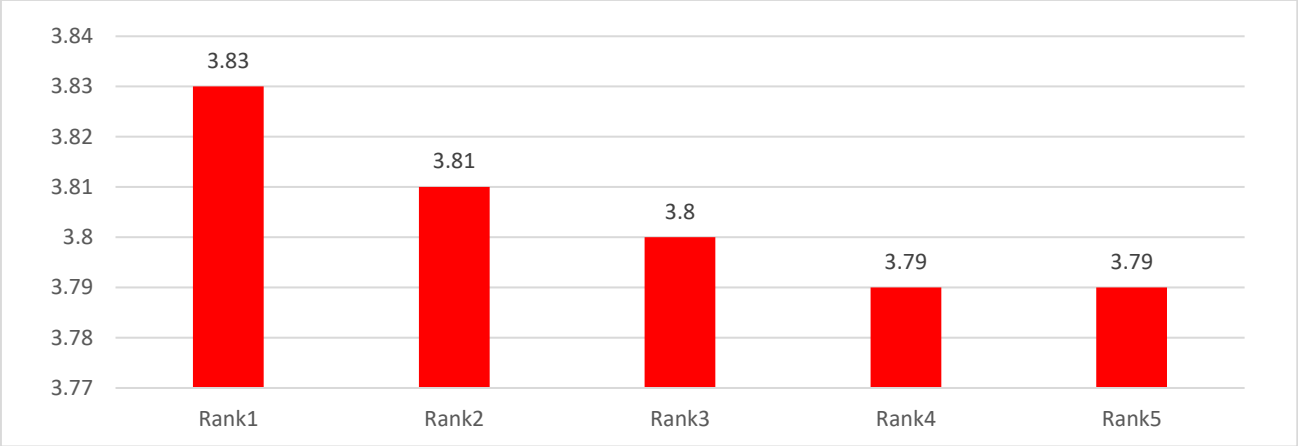
S No	Factor description	Very high impact 5	High impact 4	Moderate impact 3	Low impact 2	Very Low impact 1	Total	Score
1	Poor project management	28	47	15	6	8	104	3.80
2	Poor planning and scheduling.	29	36	27	9	3	104	3.76
3	Inaccurate cost estimation	20	35	29	17	6	104	3.41
4	Unclear scope and goals	22	32	19	22	9	104	3.34
5	Inefficient resource allocation:	19	37	27	11	10	104	3.42
6	Poor design, frequent design change, and design errors	10	19	37	27	11	104	3.83
7	Poor communication	23	39	23	10	9	104	3.55
8	Lack of financial capacity	24	32	29	11	8	104	3.29
9	Bureaucracy and corruption	45	22	18	11	8	104	3.82
10	Leadership problem	22	45	28	4	5	104	3.72
11	Lack of experience and knowledge	30	36	22	11	5	104	3.72
12	Delays in payment	20	27	27	22	8	104	3.28
13	Lack of technical performance	16	36	28	12	12	104	3.31
14	Subcontractor failure	22	33	28	16	5	104	3.49
15	Poor contractor performance	15	45	26	11	7	104	3.48
16	Poor quality	33	33	26	7	5	104	3.79
17	Poor monitoring and tracking	24	35	28	7	10	104	3.54
18	Poor site management	30	44	12	14	4	104	3.79
19	Cultural differences in global projects	6.8	24	29	22	14	104	3.04
20	Poor management of expectation	28	25	22	20	9	104	3.41
21	Weather and social environment	29	37	21	14	3	104	3.72

Hence, the top 5 most crucial factors leading Project Failure in the Pakistan construction sector were estimated and analyzed as shown in Table 2.

Table 2: Top 5 Ranked Causes Project Failure

Rank	Causes	Score
Rank1	Poor design, frequent design change, and design errors	3.83
Rank2	Bureaucracy and corruption	3.81
Rank3	Poor project management	3.80
Rank4	Poor site management	3.79
Rank5	Poor quality	3.79

Figure 4: Top 5 Causes of Project Failure



Furthermore, the questionnaire analysis of 20 major causes of cost overruns derived from the literature review was conducted using a Likert scale from 1 to 5 based on impact (with weight '1' representing low impact and '5' representing very high impact), taking into account the current situation in Pakistan's construction sector. The 20 major causes analyzed included design variation from the client or consultant, a lack of client experience, financial constraints, a delay in the client's decision-making process, a lack of contractor resources (material, labor, and equipment), inefficient contractor performance, an inappropriate procurement method, a lack of design flexibility, and poor initial planning.

Table 3: Causes of cost overruns

S No	Factor description	Very high impact 5	high impact 4	Moderate impact 3	Low impact 2	Very low impact 1	Total	Score
1	Design variation from client/consultant	15	39	29	17	4	104	3.42
2	Lack of client experience	19	30	31	19	5	104	3.37
3	Financial constraints of clients	19	36	31	12	6	104	3.48
4	Delay in the client's decision-making process	16	39	28	15	6	104	3.42
5	Contractor's resource deficiency	23	32	23	13	13	104	3.37
6	Inefficient contractor performance	36	26	28	8	6	104	3.65
7	Inappropriate procurement method	22	30	30	17	5	104	3.45
8	Lack of flexibility in design	14	35	24	25	6	104	3.25
9	Poor initial planning	42	36	18	5	3	104	4.05
10	Poor labor productivity	28	37	26	8	5	104	3.72
11	Poor cost estimation of the project	35	37	19	8	5	104	3.85
12	Lack of risk management during the execution phase	14.2	13.9	15.4	15.7	16.2	104	3.40
13		13	44	25	16	6	104	3.38

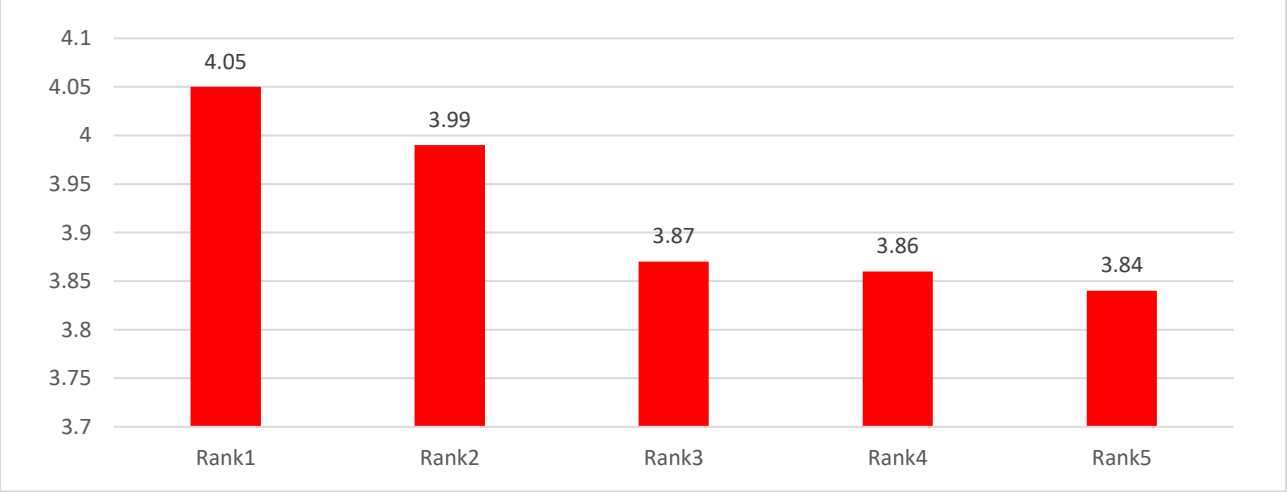
	Lack of understanding of the contract conditions by the project participants							
14	Size and complexity of the project	6.8	5.9	7.3	7.2	7.9	104	3.28
15	Poor weather conditions	9.2	8.6	10.2	10.3	11.4	104	3.84
16	Inflation and fluctuation of material and machine prices	14.2	13.9	15.4	15.7	16.2	104	3.40
17	Changing currency exchange rate	5.1	4.3	5.3	5.2	5.6	104	3.35
18	Political situations	6.8	5.9	7.3	7.2	7.9	104	3.87
19	Level of market competition	9.2	8.6	10.2	10.3	11.4	104	3.49
20	Economic instability of the country	14.2	13.9	15.4	15.7	16.2	104	4.0

As a result, the top five most important variables causing cost overruns in the Pakistani building construction sector were assessed and examined, as shown in Table 4. As a consequence, the top five most significant drivers generating cost overruns in Pakistan's building construction sector were identified and investigated, as shown in Table 4.

Table 4: Top 5 Ranked causes of cost overruns

Rank	Causes	Score
Rank1	Poor initial planning	4.05
Rank2	Economic instability of the country	3.99
Rank3	Political situations	3.87
Rank4	Poor cost estimation of the project	3.86
Rank5	Poor weather conditions	3.84

Figure 5: Top 5 Causes of cost overrun



4.2. Interview analysis

The interview was aimed at highly experienced experts in the building construction sector, with 63 percent having 10-20 years of experience in Pakistani building construction and 47 percent having more than 3-10 years of experience in Pakistani construction. Throughout their professional careers, interviewees encountered project failures and expense overruns. The

respondents worked for well-known businesses that employed project managers, structure designers, contractors, consultants, and engineers who worked on building and infrastructure projects. This allowed the researcher to gain insight into the viewpoints of a wide range of project participants participating in various building projects throughout Pakistan. The main causes of project failure in Pakistan's building construction industry are, according to interviewees 1 and 5, poor planning and scheduling, poor project management, bureaucracy and corruption, poor design, frequent design changes, and design errors. Interviewees considered the root cause of these problems. The timeline for approvals and on-site variations is rarely estimated during the early stages of a project. Interviewee 2 consents to the causes of poor site management, poor quality, poor weather, and the social environment. This insight is significant because it captures the relationship between various phases of a project and the impact of project failure. Interviewee 3 added that poor monitoring and tracking contributed to the project failure during the construction phase. Interviewees 4 and 6, who agreed with the other interviewees, stated that bad planning and scheduling, poor project management, bureaucracy and corruption, and poor project management could all be causes of project failure. These causes were associated with clients' lack of experience and inadequate consultation recommendations. Interviewee 7 pointed out that a lack of experience is a major factor in project failure. According to interviewee 8, poor planning and timing contribute to project cost overruns. Interviewees 9 and 10, who agreed with the other interviewees, emphasized that a delay in the client's decision-making process was the primary reason for project failure.

Interviewee 11 noted that a lack of leadership was a major reason for project failure. The following response analysis summarizes the major causes of project failure: poor planning and scheduling, poor project management, bureaucracy and corruption, poor design, frequent design changes, design errors, poor site management, poor quality, poor weather and social environment, poor monitoring and tracking, lack of experience, poor planning and scheduling, and leadership issues. The above study revalidates the causes of project failure assessed in both the questionnaire analysis and the literature studies conducted by (Ikediashi, Ogunlana, & Alotaibi, 2014; Osuizugbo, 2019; Wasim & Khalidi, 2018). These studies underscore the importance of improving project management methods, financial planning, and risk management to boost the success rate of building projects. Validation from several sources established credibility in real-world settings, making the conclusions more generalizable. All respondents agreed that the elements causing project failure contributed to cost overruns in a construction project, revalidating the assumption of El-Sayegh (2008). According to Interviewee 1, the primary causes of cost overruns in Pakistan's building construction industry are poor project cost estimations and the political situation. Interviewee 2 identified poor design, frequent design changes and faults, an inadequate procurement process, and poor cost projection of the project as important causes of cost overruns. Interviewees 3 and 6 noted that poor initial resource planning causes cost overruns in projects owing to delays and variations. Interviewee 4 agreed with others that a lack of poor weather conditions, inflation, and volatility in material and machine pricing all contributed to project cost overruns. The importance of these insights cannot be emphasized because they provide solutions for activities that can be taken to improve the execution of project management best practices. Interviews with 8 other advertisements Delays in the client's decision-making process reduce the project's budget. Interviewees 9 and 10: According to interviewees, financial constraints and market competition are important causes of cost overruns. 11 agreed with other interviewees, adding that poor initial planning was a major cause of expense overruns. The analysis above summarizes the main causes of cost overruns as poor cost estimation of the project, political situation, poor design, frequent design changes, design errors, inappropriate procurement methods, poor cost estimation of the project, poor initial planning, lack of poor weather conditions and inflation, fluctuations in material and machine prices, delays in the client's decision-making process, financial constraints of clients, and level of market competition. This study verifies the causes of cost overruns discussed in the literature by (El-Sayegh, 2008; Motaleb & Kishk, 2013; Ren, Atout, & Jones, 2008), as well as questionnaire analysis.

5. Conclusion

The purpose of this dissertation is to examine, assess, and analyze the causes of project failure and cost overruns in Pakistan's construction sector. The industry's performance is primarily determined by its ability to complete tasks on time, within budget, and with high quality. Project failure and cost overrun performance have been worrisome and common occurrences in Pakistan's construction sector. However, most projects remain undetected. This lack of reporting

makes it even more difficult to explain and solve problems that have become systemic in the industry. Poor project management, poor design, frequent design changes and flaws, bureaucracy and corruption, low quality, and poor site management were identified as the top five causes of project failure in Pakistan's construction industry. The top five causes of cost overruns were poor initial planning, poor project cost estimation, poor weather conditions, political problems, and country-wide economic instability. In addition, there is no proper regulatory framework to oversee the projects and no accountability mechanisms, which in turn escalates the problems. These causes have been experimentally demonstrated to be applicable in a variety of countries. However, due to the participation of diverse cultures and local governments, delays and cost overruns in Pakistan have been significantly related to approvals associated with government entities, unlike in other countries. Client involvement and coordination with other project entities and vice versa is also a major concern for delays and cost overruns in the Pakistani construction industry. The relationship between clients, consultants, and contractors must be strengthened with benefits and rewards by incorporating or processing reward conditions as well as adopting a welcoming contract. Further, it understands and promotes positive, transparent, and progressive changes at the industry and project levels and higher levels of sustainability, and the overall improvement of projects may be achievable. Research on how various contract forms can help improve the performance of the Pakistani construction sector and detailed research and analysis on the impact of current tools and techniques to improve project and budget performance in the Pakistani construction sector can aid in improving the performance of the construction industry in the future.

5.1. Practical Implications

According to the findings of this study, here are the practical recommendations of managerial measures that can help managers ensure the success of their projects in construction: For the enhanced delivery of complex projects, training and development programs for managers must be enhanced for them to acquire necessary skills and knowledge in line with the current project management best practices. Applying professional industry standards to the work-flow may contribute to the stabilization of certain procedures, avoidance of waste and increase in the efficiency of projects. In detail, the following points emphasize the need for initial rigorous design, frequent planning, and stakeholder involvement: The significant need for modifications and errors is avoided through adequate design, a proper process of managing design change, efforts to reduce interruptions that may be costly. Through addressing some of the aforementioned problems, one can raise the chances of the accomplishment of projects and overall improvement of construction development.

5.2. Limitations and Future Research Direction

There are a few limitations in the study. It was carried out in one industrial sector of Pakistan that is building construction industry only; this may inhibit generalization of the results in other countries or anywhere else as cultures and other factors may differ significantly. In addition, the sample comprised 104 team members and it is important to consider whether results obtained can be generalized to the entire industry. There are bound to be aspects of the researcher’s prejudice and assumptions in the personally collected and analyzed qualitative data from the interviews, thus, affecting the reliability of the findings. Moreover, the study focused on building construction projects only; such a constraint limited the capture of Construction industry problems relating to other classifications of construction works for example infrastructure construction or industrial construction. Last but not least, the research focused only on a limited number of variables, which could have implied the existence of other potential causes for project failure and cost overruns. A future study might overcome these shortcomings if researchers decide to expand the geographical context of the study to incorporate more than one nation, wherein it becomes possible to conduct a comparative analysis of different economic, political, and cultural conditions. Larger sample size would yield more reliable and transferable conclusions and including both quantitative measures that are standardized could help reduce the effect of subjective decision making in a qualitative assessment. Further research should be conducted to examine more significant varieties of building projects, including infrastructure and industrial construction, to address certain challenges and prospects in these domains. In addition, examining other potential factors behind project failure and cost overruns, including technological progress, stakeholders’ handling, and supply chain issues, may give a more comprehensive outlook of the construction industry.

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