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Risk Identification and Control in Oman's Construction Industry: A Systematic Review and Conceptual Framework

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Abstract

The construction industry in Oman faces significant risks that influence cost, time, and overall project performance. Although risk management has been widely studied globally, research focusing specifically on Oman and the Middle Eastern context remains limited. This study manages this gap by conducting a systematic literature review on risk identification and control strategies in construction projects. Eligible studies were selected by using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) method. SCOPUS and ScienceDirect were selected as the leading journal databases. A total of 33 articles were selected for further analysis through this procedure. The review synthesises findings from recent studies, highlighting critical risk identification and classification, including financial, environmental, operational, logistical, regulatory, legal, health and safety, and market risks, as well as strategies for mitigating them. Several recommendations were also suggested to provide the essential knowledge and information for future research. Based on the insights gained, a conceptual framework is proposed to guide risk control practices in Oman's construction industry.

Keywords: Type your keywords here; between 3 and 6; separated by semicolons.

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1. Introduction

Construction projects are unique; the most essential feature is the time that may guide them to changing conditions. Due to the lengthy implementation period and the various stages from project initiation to delivery, this presents risks (Hamad et al.,2021). Thus, suitable risk identification and adaptable management are required to respond efficiently to the various risks during the project implementation (Abdelaal (2023). Risk management is a critical issue affecting the project's functioning effectively, so it needs scientific study because the increase of the risk within any project turns into a problem. These risks can be legalized by studying the types of these risks and identifying them accurately (Al-Ajmi & Makinde, 2018). Risk management is considered a tool or means to control financial and human losses.

Related to Zhu et al. (2022), risk management is a process to avoid losses and utilize available options potentially occurring from risks. However, Fellows & Liu (2021) defined risk management as simple and practical ways of indicating, assessing, monitoring, and controlling risk scientifically and organized. To sum up, it is the process of identifying, assessing, and managing the risks to a company's resources and implementing a risk control plan suitable to control projects at all stages.

Construction projects are considered one of the most exposed to a high degree of risk in the various stages of work. Risk management in construction projects aims to plan and control measures needed to avoid risk exposure. So, it is essential to identify and assess the range of the risk and provide suitable methods to manage any risk (Al-Ajmi & Makinde,2018). According to Ahmed & Mohammed (2019), Construction projects require lots of resources, human capital, materials, and technical capabilities. Furthermore, financial constraints in a certain period to complete high-quality work. Also, it is required a long implementation period. However, Building projects are affected by uncertainty

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and risks that affect project implementation time and increased costs. Many studies have mentioned the importance of risk management in construction projects. It summed up that risk management is essential in building projects to reduce losses and enhance profitability.

Risk management is the way to identify all future challenges that may positively or negatively affect the achievement of project objectives. Related to Nawaz et al. (2019), The risks in contracting companies are classified into two main types, internal and external. Internal risks controlled by the project team, such as legal and regulatory risks, are concerned with risks related to licenses and permits. Also, Design related risks, risks associated with the work team, and mismanagement, such as making inappropriate decisions at the wrong time, lead to workflow disruption. Moreover, risks related to construction operations and delivery. The second type of risk is external risks out of control or influence of the project team, for example, risks arising from equipment failure. Also, natural or environmental hazards, such as earthquakes and fires. And social and economic risks. On the other side, Al-Ajmi and Makinde (2018) classified the construction risks based on the work stage of the project into three categories, tendering, execution risk and operational risk.

The Demand for a Systematic Literature Study

Many stakeholders in the construction industry aim to manage risk to protect themselves against its adverse impacts and to enhance their reputation (El-Sayegh et al., 2021). Unfortunately, the literature suggests that risk management is evident in the construction industry; however, documents claiming extensive use of risk management are scarce. The understanding of risk management activities is limited, and their characterisations are often unclear. Hence, the poor implementation of risk management procedures in project outcomes results in serious unforeseen risks. Thus, this indicates that conceptual frameworks and Systematic Literature Study should be researched and developed, guiding construction project participants on how to manage the industry's risk properties.

The study not only aims to create a framework for reducing the impact of risks on Oman's construction industry but also to inspire further research. By providing valuable insights and considering limitations such as data availability and generalizability, we can pave the way for future studies. Researchers, by considering these limitations when studying the impact of various risks on Oman's construction projects, can identify potential areas for further research, thereby fostering a sense of inspiration and motivation for future studies.

There is an obvious growth in the construction sector in Oman, accompanied by a growth in risks and increased complexity. However, a review of the literature indicates a lack of comprehensive studies focusing on risk identification and control strategies. While many international studies have identified and managed risks in the construction sector, only a few have specifically examined the implementation of these strategies in the Omani industry. While many international studies have identified and managed risks in the construction sector, only a few have specifically examined the implementation of these strategies in the Omani industry.

Some previous research, such as Yafai et al. (2014), has examined some of the risks in the local construction industry, but it did not use a systematic and comparative approach. Furthermore, recent studies are either limited in scope or focus on multiple risk factors without providing applicable guidelines or frameworks for the Omani construction environment. This fragmented and insufficient portion of knowledge creates a significant demand for a systematic literature review to synthesise existing findings, specify gaps, and supply a foundation for developing a contextualised risk control framework.

Thus, this study seeks to bridge this knowledge gap by completing a systematic review of current regional and international literature to map out common risks, assess mitigation strategies, and suggest a conceptual framework tailored to the realities of Oman construction projects.

2. Material and Methods

This chapter will discuss the proposed research project's appropriate methodology, research strategy, and relevant studies selection process. This chapter provides a view of the methods used in this study. According to Fellows and Liu (2021), The way data is collected can influence the analysis, hence, impacts the results, conclusions, reliability, and validity of a study.

2.1. PRISMA

The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) framework was progressed through four steps: selection, sorting, eligibility, and inclusion. This framework was adopted to provide a transparent and replicable method (Page et al., 2021).

In this study, the PRISMA framework was applied to allow for a clear display of the selection pathway and to identify studies most relevant to the research topic and most helpful in achieving the study's objectives. Relevant studies were tracked, and those that did not meet the time and subject criteria were excluded to identify eligible studies.

2.2. Resources

The resources used for this study were drawn from multiple reputable academic databases to ensure objectivity and broad coverage of local and international literature, ensuring that the analysis is based on a balanced set of perspectives. The databases included Scopus and ScienceDirect which together provide access to peer-reviewed scientific articles covering more than 250 fields of study, including construction engineering studies. The search strategy employed a combination of keywords and Boolean operators tailored to the research topic, allowing for accurate retrieval of studies related to risk identification and control in Oman's construction industry.

Previous research emphasised that researchers should handle the literature study by using mixed sources to advance the possibilities of gaining appropriate literature results (Pereira & Mugnaini, 2023). Thus, a combined manual searching approach and Excel (using the duplicate removal feature) were employed in this study to manage the literature review on the two databases, considering that these sources are significant and consist of journal articles related to construction and risk control studies.

2.3. The Systematic Review Process for Selecting Articles

2.3.1. Identification

The approach of selecting articles for the systematic review involved three main phases. The identification step is the initial phase in selecting relevant studies. The search was conducted using a combination of keywords and Boolean operators related to "risk identification," "risk control," "construction industry," and "Oman." Consequently, the search string was deployed on SCOPUS and Science Direct (Table 1). This step yielded a total of 1,016 records from different sources.

Table 1. The search strings.

Database	Search String
SCOPUS	(TITLE-ABS-KEY("risk identification" OR "risk assessment" OR "risk control") AND TITLE-ABS-KEY("construction industry" OR "construction projects")
Science Direct	("risk identification" OR "risk assessment" OR "risk management" OR "risk control") AND ("construction industry" OR "construction projects" OR "building projects")

2.3.2. Screening

This step is the second phase in developing the systematic literature review process. It aimed to remove duplicate papers, which reduced the dataset to 3,820 unique articles. And to screen the selected articles according to typical criteria (Table 2). In this study, only research articles from academic journals were selected, as journals are recognised as primary sources of empirical data and excluded research articles such as reviews, books, book series, book chapters, and conference proceedings. Also, English studies published in the last years (between 2018 and 2025) were targeted. Studies targeting the Omani construction industry and Middle East countries were also focused on.

Table 2. The inclusion and exclusion measures

Criteria	Inclusion	Exclusion
Type of literature	Journal (research articles)	Journal (review), book series, book, book chapter, conference proceedings
Language	English	Non-English
Time limitations	Between 2025 and 2018	<2018
Scope limitations	Oman and Middle East countries	Non- Middle East countries

2.3.3. Eligibility and Inclusion

This final stage aims to examine and review the selected research carefully. Titles and content were reviewed to ensure they were fitting with the study's objectives. Focusing on studies that discussed risk identification, control strategies, and frameworks applicable to Oman's construction sector. After this examination, 33 studies met the requirements and were retained for the final review. These selected articles formed the evidence base for the subsequent analysis and conceptual framework development. The flow diagram summarised the systematic review process for this study, as shown in Figure 1.

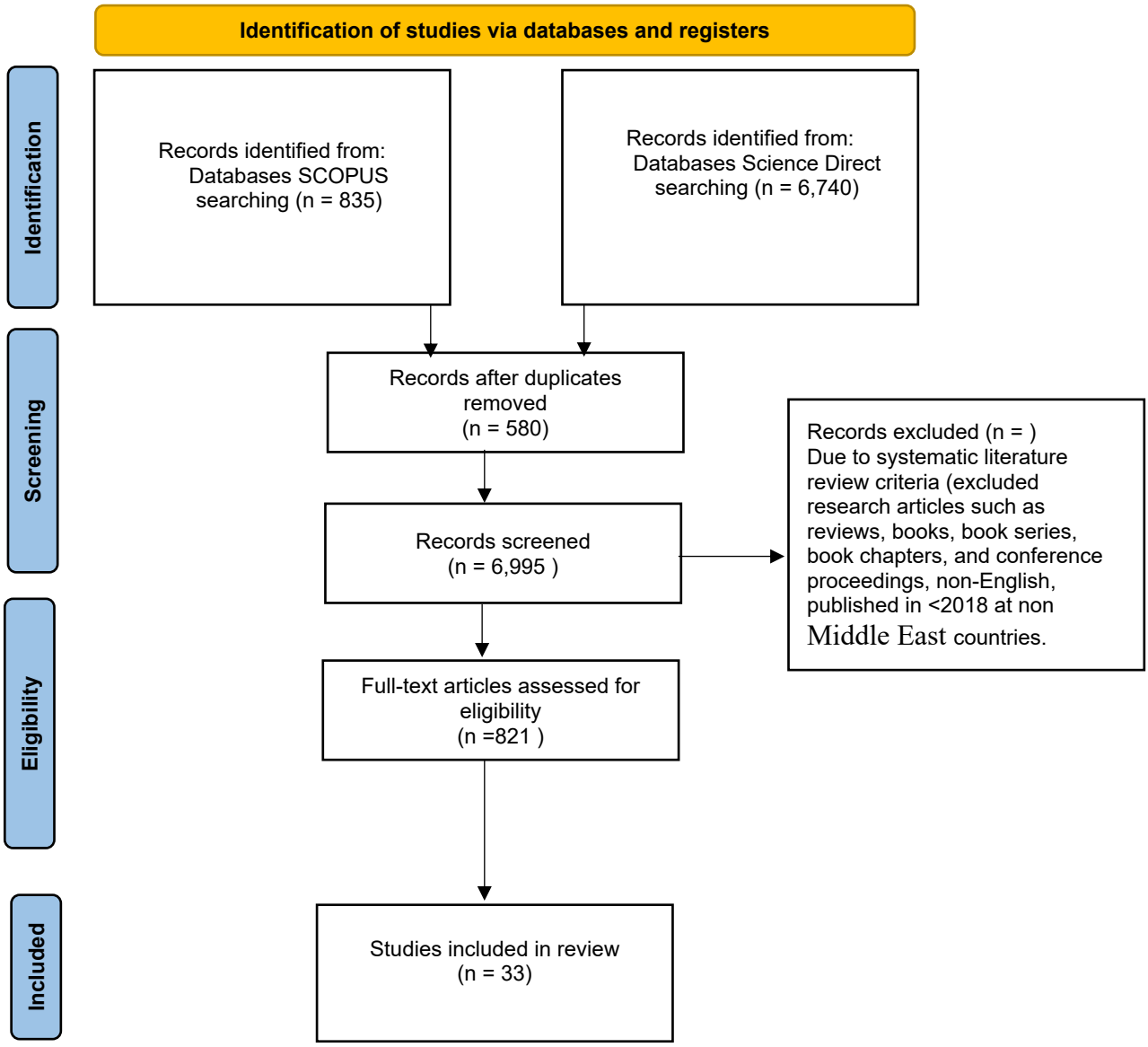

Figure 1. PRISMA flow diagram adapted in this study

3. Results

The concept of risk management is a process to avoid losses and utilize available options potentially occurring from risks (Okoye, 2022). Related to Alshehhi et al. (2025), risk management defined as simple and practical ways of indicating, assessing, monitoring, and controlling risk scientifically and organized. To sum up, it is the process of identifying, assessing, managing the risks to a company's resources and implementing a risk control plan suitable to

control projects at all stages. Abdelaal (2023) classified risk in construction projects into technical, construction, physical, organizational, financial, socio-political and environmental risks.

Tessema et al. (2022) mentioned that construction projects are widely recognized to be vulnerable to a significant level of risk that cannot be overlooked but can be controlled. Because these projects require collaboration among experts from various fields, this cooperation must be designed around extensive, diverse, and interconnected processes. Also, based on Alsaadi & Norhayatizakuan (2021) managing risks is a critical aspect of construction projects due to their increasing size and complexity. Although it's impossible to eliminate all risks, a formal risk management process is required to manage them effectively.

Many studies have mentioned the importance of risk identification in construction projects to improves opportunities. Related to Aljassasi & Dawood (2021), identify risks is a vital component of decision-making by controls losses and enhance profitability. It also assists in detecting risks early to control the effects effectively and determine the importance of each constraint that manages the risks even before they occur (Alsaadi & Norhayatizakuan (2021); Abu Qalbin et al. (2023).

Nabawy et al. (2021). Ahmed & Mohammed (2019). El-Sayegh et al. (2021) and Alrasheed et al. (2023) showed a review that serves as a valuable resource for understanding the complexities of safety risk management in the construction industry. However, while these articles effectively synthesize existing research, it could benefit from a more detailed discussion on the practical implementation of these frameworks in diverse construction contexts, such as those specific to Oman. Considering the unique challenges of the construction industry in Oman, including its regulatory environment and cultural factors, a customised approach to risk management strategies would be advantageous.

3.1. Main Findings

3.1.1. Risk Identification and Classification

Recent research highlights the significance of systematically identifying risks in construction projects. Nabawy et al. (2021) developed a structured framework for Egyptian mega-housing projects that categorizes risks into technical (design errors, construction defects), managerial (poor planning, communication gaps), and external (economic fluctuations, regulatory changes). Similarly, Al-Harthi et al. (2021) specifically identified Oman's key risks, finding that regulatory delays affect 35% of projects and labour shortages significantly result of project timelines.

El-Sayegh et al. (2021) expanded risk identification to include sustainability factors in UAE construction projects, while Tessema et al. (2022) examined unique risk factors in Ethiopian projects, demonstrating the importance of context-specific risk identification. These studies collectively highlight that while certain risks are universal in the construction industry, regional variations must also be considered.

3.1.2. Risk Management Strategies

Many researchers have proposed different risk assessment models for precise construction project assessment activities. Every risk management approach requires unique means and models to be optimally utilized (Kassem, 2022).

Bayraktar (2020) provided a comprehensive analysis of risk management in the construction sector, identifying financial and contractual risks as responsible for 42% of project failures. The study highlighted the importance of proactive mitigation strategies such as contingency budgeting and stakeholder collaboration.

Emerging methodologies show promise in improving risk management. Ahmed and Mohammed (2019) demonstrated that agile methods can reduce risk response time by 40% through iterative risk reassessment and flexible contract structures. Similarly, Bahamid et al. (2022) found that real-time monitoring systems can reduce delays by 35%, highlighting the value of technology in risk management.

There are several studies in risk management using CSFs in the project planning stage (Rampini et al. (2019), and researchers found that the pinpointed risks at the planning stage can be complemented by CSFs, which can empower construction experts to edit the risk management plans effectively to control the time delays, cost overruns and improve the project quality.

Sarvari et al. (2021) defined critical success factors (CSFs) as environmental factors, realities, and other significant factors that affect a project's outcome. These factors can either promote the implementation of a project or create problems during its execution. Among these factors, some have a more effective influence on the project's success

(Rampini et al. (2019); Sarvari et al. (2021)). Walsh and Walker (2020) identified the Critical Success Factors and their relative significance to provide a tool for construction experts to prioritise critical success factors for risk management and to create an effective decision plan for risks. Additionally, they identified the most critical success factors for successful risk management as project management capacity, knowledge and experience, and the early involvement of contractors and socio-cultural forces in that order.

Many researchers have utilised standards and guidelines, such as the Project Management Body of Knowledge (PMBOK), ISO 21500, and ISO 31000, to manage risks. The recent guidelines primarily focus on the project planning phase to design a risk management plan (Johnson & Babu, 2020). ISO 31000 is a set of standards relating to risk management, codified by the International Organisation for Standardisation. ISO 31000:2009 provides guides, a framework and an approach for managing risk. The purpose of using ISO 31000 is to support the achievement of objectives, enhance the identification of opportunities and risks, and effectively utilise resources for risk management (Pathak & Kansal, 2018).

According to Wicaksono (2020), ISO 31000:2018 provides more strategic guidance than ISO 31000:2009, emphasising the involvement of senior management and the integration of risk management into the project. It recommends developing a statement that ensures a commitment to risk management, assigning authority and responsibility at the efficiency levels within the company, and ensuring that critical resources are assigned to managing risk.

Many researchers have proposed different risk assessment models for precise construction project assessment activities. Every risk management approach requires unique means and models to be optimally utilized (Kassem, 2022). Mohandas et al. (2020) designed a novel Risk Assessment Model (RAM) by integrating the Fuzzy Best Worst Method (FBWM), resulting in a final illustration of the risk's magnitude for construction safety experts.

Sami et al. (2022) applied Building Information Modelling (BIM), and Erol et al. (2022) used an Analytic Network Process (ANP) model to develop a comprehensive approach to risk assessment that includes risk-related concepts. Ahmed and Mohammed (2019) employed a risk management framework in construction projects built on the Agile management concept, a series of techniques that span the project's primary phase to its final delivery.

Also, Zhu et al. (2022) developed a model to determine the overall risk of a project. The model uses the Decision-Making Trial and Evaluation Laboratory (DEMATEL). The model identified the interdependence of risks and their contribution to project risk. To reduce subjectivity, the model's inputs were drawn from records of risks, probabilities, impacts, and risk events from similar historical projects.

Recent research highlights several emerging trends and future directions in the field. These include the increasing importance of sustainability risk management (El-Sayegh et al., 2021), the potential of digital technologies such as Building Information Modeling (BIM) (Raamkumar & Indhu, 2022), and the necessity for cultural adaptation in risk frameworks (Walsh & Walker, 2020).

3.1.3. Framework of Risk Management on Construction Projects:

Various researchers have developed many risk management frameworks. According to Nawaz et al. (2019), there are five steps to designing a risk management framework for construction projects: understanding the company's context, founding risk management procedure, integration into organizational operations, determining the responsibilities and resources and defining the communication and consultation plans. Also, they added that the framework for construction projects should cover all phases depending on the stage and type of company. However, Nabawy et al. (2021) explained that structured identification matrices improve early risk detection by 25%. Their Egyptian case study classified risks into technical (design, materials), managerial (planning, communication), and external (regulatory, environmental) categories. The objective is to encounter optimal investment risk by assessing the client's required risk, capacity, and tolerance. Ahmed and Mohammed (2019) developed an agile framework that integrates risk management throughout the project lifecycle using iterative cycles. Their strategy reduced risk response time by 40% in case studies, enabling rapid adaptation to emerging risks.

Abanda et al. (2022) developed a framework to reach the most incredible benefits of the planned and executed risk management process and maintain a continuous risk communication chain at all phases of the lifecycle of any construction project. The essential parts of the risk management framework are risk definitions, identification, analysis, evaluation, reaction, monitoring and communication. Walsh and Walker (2020) highlighted the need for cultural modules in GCC frameworks, finding that they can improve traditional approaches, such as local business practices,

expatriate-local workforce dynamics, and government-private sector interfaces. Table 3, sum up the ways of designing the framework of risk management in recent studies.

Table 3. The way of designing the Framework of Risk Management

References	The way of designing the Framework of Risk Management
Nawaz et al. (2019)	Following five steps for fully understand the company's situation and risk management
Nabawy et al. (2021)	Developed a structured risk identification framework for Egyptian mega-housing projects.
Ahmed & Mohammed (2019)	Proposed an Agile-based risk management framework for dynamic projects.
Abanda et al. (2022)	risk definitions, identification, analysis, evaluation, reaction, monitoring and communication.

3.1.4. Analysing Risk Management on Construction Projects:

Depending on Kermanimoghaddam (2023), risk management can be applied by following three steps, identifying then analyzing and finally responding to these risks. In order to reach effective management, each type of risk must be realized and identified as early as possible . It may be the most difficult and accurate stage (Cakmak & Tezel ,2019). Alsaadi & Norhayatizakuan (2021) categorized risk analyzing into quantitative and qualitative methods .Quantitative analyzing referred to formulate the issues and evaluate options. And qualitative methods used graphical models to represent risks, its impacts and the effects of each decision. Many studies have referred to systematic methods of risk analyzing in construction projects, the most recent implement using artificial-fuzzy neural networks technique (Kermanimoghaddam, 2023). This method use the software and set the educational data in a chart and then place the same data to the system. The fuzzy inference system estimates the output based on these data and displays it on the same chart to be comparable with the training data. And the results shows that, neural-fuzzy network giving very valuable results in the field of risk management ,but cannot replace traditional deterministic ways, however a good decision support tool.

Kassem (2022) used the structural equation technique to analyze the study's hypotheses of risk management on construction projects through the PLS-SEM method using SmartPLS 3 software. Also, Kassem et al. (2020) using probability impact matrix (PIM) in analyzing risk factors affecting the construction projects in Yemen. Table 4 sum up the ways of analysing risk management in recent studies.

Table 4. The way of Analysing Risk Management

References	The way of Analysing Risk Management
Alsaadi & Norhayatizakuan (2021)	Analyzing into quantitative and qualitative methods
(Kermanimoghaddam, 2023)	Artificial-fuzzy neural networks technique
Kassem (2022)	the structural equation technique through the PLS-SEM method using SmartPLS 3 software.
Kassem et al. (2020)	Probability impact matrix (PIM)

3.1.5. Regional Risk Management Challenges

The literature reveals significant regional variations in construction risk management:

In the GCC region, Walsh and Walker (2020) found that cultural risks affect 60% of Western consultants working on projects, while Alshihri et al. (2022) showed that Saudi projects experience 22% more heightened cost overruns due to regulatory issues comparable to those in Oman. Alrasheed et al. (2023) reported that Kuwaiti delays mirror those in Oman in 78% of cases, indicating common regional challenges.

Oman-specific research by Hamad et al. (2021) determined contractor capability as the most critical success factor, while Amri and Marey-Pérez (2020) found that 62% of Omani projects exceed budgets by more than 15%. These findings underscore the importance of implementing risk management strategies tailored to specific local contexts.

Table 5. Gap in the Study within Oman

Authors /Years	Area of study	Method of Use				Types of Studies		
		questionnaires	Interviews with construction professionals	Interview Authority	Statistical analysis	identify the risks and their impact	determine strategies to control the risks	develop a framework
Al-Khawaldi (2025)	Oman, Duqm	x	x	x	x	x	x	x
Ahmed & Mohammed (2019)	Iraq					x		x
Nabawy et al. (2021)	Egypt		X			x		
Omer et al. (2021)	Malaysia	x				x		
Boustani (2021)	Saudi Arabia	x				x		
El-Sayegh et al. (2021)	UAE	x				x		
Al-Harthi et al. (2021)	Oman	x	x			x		
Hamad et al. (2021)	Oman	x				x		
Amri & Marey-Pérez (2020)	Oman	x				x		
Alshehhi et al. (2025)	UAE	x			x	x		
Alsaadi & Norhayatizakuan (2021)	Oman	x						
Abu Qalbin et al. (2023)	Jordan	x			x	x	x	
Bahamid et al. (2022)	Yemen	x	x			x		
Aljassasi & Dawood (2021)	Oman/UK	x	x		x	x	x	x
Abdelaal (2023)	Palestine	x			x	x	x	
Walsh and Walker (2020)	GCC (Gulf Cooperation Council)		x			x	x	
Johnson & Babu (2020)	UAE	x			x	x		
Alshihri et al. (2022)	Saudi Arabia	x			x	x	x	
Bayraktar (2020)	Turkiye		x			x		
Esmaeili et al. (2022)	Iran				x	x	x	

3.2. Research Gaps and Framework Development

The most common topic in these literature reviews was identifying risk factors affecting construction projects and their impact on project cost and time. This study concentrated on the impact of all risk factors on the project's success. Only a few recent studies related to this research have been conducted in Oman, which is the exact location of this study. However, the study area for those research studies is not explicitly located within the Special Economic Zone at Duqm, which is the most significant of Oman's world-renowned economic zones. Like most related studies, our research also uses a comprehensive questionnaire and interviews with construction professionals. This methodological consistency ensures a more nuanced and reliable understanding of the topic. However, none of the recent studies employed interviews with authorities in this research to develop strategies that align with the situation and requirements of construction projects in Oman.

Additionally, a framework for risk control strategies has yet to be developed based on all recent studies conducted in Oman. Table 5 presents the gap in the study within Oman. All studies examine the risks and their impact, highlighting their importance. Additionally, the stakeholder interviews conducted for the study by Al-Harthi et al. (2021) involved only construction professionals. So, the gap here is that none of them involve the interview authority, which will be implemented in this research. There is also a gap in applying statistical analysis and developing a framework for strategies to control risk.

A systematic review of current literature highlights significant improvements in construction risk management frameworks across various contexts. A systematic review of the current literature pointed to significant improvements in construction risk management frameworks across various contexts. Recent studies emphasize three paradigm shifts: the integration of digital tools (BIM) for dynamic risk assessment (El-Sayegh et al., 2021; Johnson & Babu, 2020), agile methodologies for rapid risk response (Ahmed & Mohammed, 2019), and growing recognition of region-specific factors in GCC construction (Walsh & Walker, 2020; Al-Harthi et al., 2021).

3.3. Development of the Proposed Risk Control Framework

Based on a comprehensive review of relevant literature and the preliminary data collected, a customized risk control framework has been developed to address the needs of the construction industry in Oman. Figure 2 illustrates the proposed framework for risk control in construction projects in Oman, which follows a structured, six-step process tailored to the local context. The first step involves recognising a broad range of risks that could impact construction outputs, including financial, environmental, operational, logistical, regulatory, legal, health and safety, and market Risks. The next step, Risk Classification, organises these risks into categories such as internal versus external or controllable versus uncontrollable. This classification enables a better understanding of their origin and scope (manageability).

In the Risk Analysis stage, each risk is assessed for its probability of occurrence and the severity of its impact using the Probability-Impact Matrix as a risk scoring system, which utilises both qualitative expert judgment and quantitative tools. According to Esmaeili et al. (2020), it is crucial to comprehend which risks require the most attention and resources.

In Risk Evaluation, the scores are interpreted to categorise risks into levels: low, medium, high, very high, or extreme. This step supports decision-makers in deciding which risks require immediate attention.

Once evaluated, appropriate Risk Response Strategies are selected. These may include avoiding the risk, monitoring and mitigating it through preventive actions, transferring it through insurance or agreements, or accepting it if it falls within acceptable thresholds (Acebes et al., 2024). The last stage, Monitoring and Review, ensures continuous management of identified risks. This may include updating the risk register, performing periodic risk reviews, and modifying mitigation strategies as project conditions grow.

This framework is designed to be adaptable and scalable, allowing for seamless integration with existing project management tools and alignment with international standards, such as ISO 31000, while addressing the unique characteristics of construction environments in Oman.

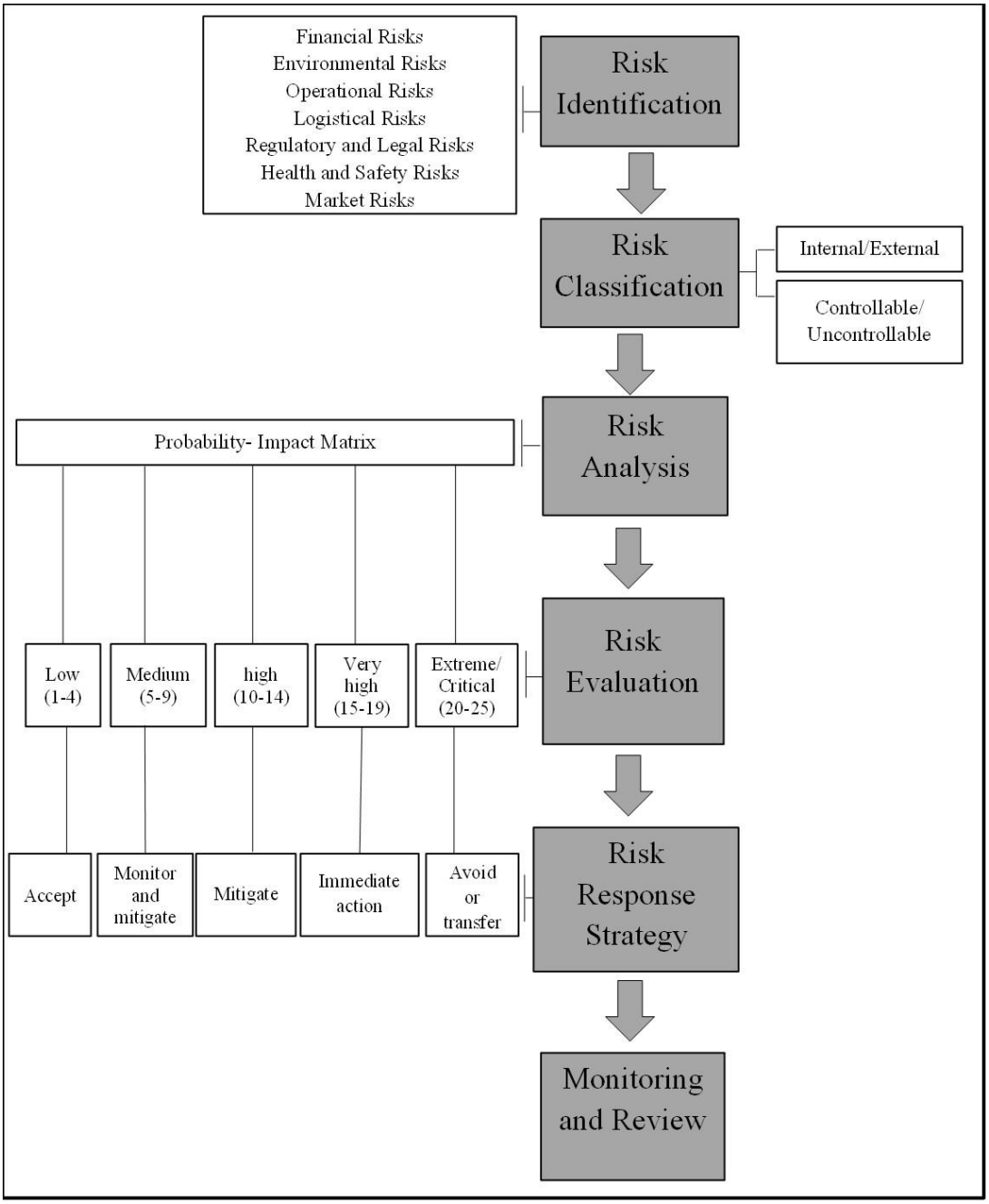

Figure 2. Proposed framework for risk control in construction projects in Oman

4. Conclusion

This review studied risk identification and control practices in the construction industry, with a focus on Oman. The conclusions suggest that, although regional studies have examined common risks such as delays, cost overruns, and safety crises, research specifically tailored to Oman remains limited. Most studies relied on surveys and interviews, while advanced analytical methods were less common.

The significance of this study lies in its attempt to consolidate fragmented research and highlight the urgent need for a systematic framework tailored to Oman's construction sector. By addressing this gap, the study contributes to both academic knowledge and industry practice,

The review further highlights the lack of frameworks that integrate localised risks with practical control strategies. To address this, the study proposes the development of a conceptual framework adapted to Oman's unique context. Such a framework will enhance the effectiveness of risk management, resulting in a structured, localised, and user-friendly model. Overall, it provides a measurable and standardised tool that can offer insights to inform the decisions of governments, contractors, and project managers.

Conflicts of Interest: The authors declare that they have no conflicts of interest to report regarding the present study.

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