



A Review of Project Management Research in Libya's Construction Industry: A Literature Analysis

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Citation: Bin Salim Mohammed Albahloul Almukhtar, et.al (2024). A Review of Project Management Research in Libyan's Construction Industry: A Literature Analysis, *Educational Administration: Theory and Practice*, 30(3) 3380- 3386
Doi: 10.53555/kuey.v30i3.10337

ARTICLE INFO	ABSTRACT
	<p>The construction industry is essential to Libya's economic growth, supporting adjacent sectors and making a substantial contribution to GDP and employment. Nevertheless, despite its economic significance, little is known about how well project management techniques work in Libya's building sector. In order to assess the factors and approaches applied in earlier studies on project management in Libya, with an emphasis on both public and private sector projects, this study does a narrative literature review. After a thorough search of Google Scholar, eight peer-reviewed publications from 2019 to 2024 were chosen. The results show an excessive dependence on broad frameworks that are not adapted to Libya's particular building environment and a deficiency of thorough evaluation methods. Critical topics like risk mitigation, strategy planning, and stakeholder management are also still poorly understood. In order to improve productivity and performance in Libya's construction industry, this assessment emphasizes the critical need for context-specific research and the creation of regional project management frameworks.</p>

1.0 Introduction

The construction industry contributes significantly to increased economic productivity by investing in a range of sectors, such as manufacturing, services, and agriculture (Chen & Wallace, 2023). By reducing expenses, fulfilling project deadlines, and guaranteeing that quality standards are maintained, stakeholders from the public and commercial sectors seek to enhance project performance (Chen & Wallace, 2023). Thus, making sure that projects are finished on schedule, within budget, and in line with their anticipated results is the main goal of project control. Nevertheless, the application of contemporary techniques in the building sector frequently leads to delays and cost overruns. Lack of knowledge about the crucial aspects of time and cost management is commonly blamed for these problems (Rodríguez, 2022).

In Libya's instance, the nation is now dealing with a severe housing scarcity. Despite the fact that many developing countries face comparable difficulties, it is crucial to take into account each nation's particular demographics. According to 2025 Worldometers statistics, Libya has a comparatively modest population of 7,458,555 while having a big land area of about 1,759,540 square kilometers (Worldometers, 2025). 82.1 percent of Libyans lived in cities as of early 2025, compared to 17.9 percent who lived in rural regions. The gender distribution of the population was about equal, with men making up 50.8% and women 49.2% (Worldometers, 2025). Libya's settlement patterns show major geographical variations among areas along with a notable urban concentration in some cities (Worldometers, 2025).

Libya's gross domestic product (GDP) is significantly influenced by construction projects. About 8% to 12% of Libya's GDP came from the construction industry in 2023, underscoring its critical role in promoting economic recovery and maintaining national growth (Libya Ministry of Planning, 2024). In addition to making a significant contribution to GDP, the construction sector employs more than 50,000 people in 2023. Additionally, its expansion promotes broader economic stability by supporting allied businesses like engineering services and material supply (Libya Ministry of Planning, 2024).

Certain aspects of the Libyan building industry have been the subject of numerous studies. To evaluate the use of project management techniques, for instance, research on strategic management practices in Libya's construction industry has been carried out using the Balanced Scorecard framework (Shibani & Gherbal, 2018). A wider range of project management tools and strategies have been studied by other researchers (Sidney, 2019; Carstens & Richardson, 2019). Although there are many studies assessing project management

techniques, the majority have concentrated on the elements that lead to a successful project's completion (Herath & Chong, 2021; Alotaibi, 2019). Instead of critically evaluating the procedures themselves, these studies primarily focus on project results.

Nevertheless, little study has been done to assess project management techniques particularly in the context of Libyan construction (Hassan & El-Mehdawi, 2023). An opportunity to evaluate the current efficacy of project management approaches in Libya is provided by a thorough assessment of the literature in this area (Hassan & El-Mehdawi, 2023). A strategy like this might also direct the creation of a strategic framework for the industry's ongoing advancement of project management techniques. However, very few studies have examined the particular project management techniques used in Libya's building sector (Saleh, 2024). Additionally, in order to evaluate the efficacy of project activities, researchers have been depending more and more on generic models (Tarek & Johnson, 2022). Because of this, it is difficult to determine if these methods are suitable or indeed beneficial for enhancing project management in the Libyan construction industry (Tarek & Johnson, 2022). This literature review's main goal is to investigate the factors used in previous research to assess project management techniques in Libya. With an emphasis on both the public and private sectors, it particularly looks at the background of these studies. After outlining the review methodology, the next part analyzes the corpus of literature that has already been written on a variety of subjects pertaining to project management in Libya's civil construction sector. A succinct discussion and conclusion that highlight the main conclusions and insights come next. The evaluation of project management techniques pertinent to the Libyan construction industry is the investigation's ultimate goal.

2.0 Method

This study reviews pertinent literature using a narrative analysis technique. Either a dearth of prior research or the researcher's close ties to certain studies or theoretical stances are frequently the driving forces behind narrative analysis. Google Scholar was used as the main database for the literature search in order to guarantee thorough coverage. In order to find studies that specifically addressed pertinent models and topics, a thorough review of titles, abstracts, and complete texts was part of the selection process.

A combination of keywords was used in the search, including: "Project management" AND "Construction project management" AND "Project planning and control" OR "Risk management in construction" OR "Construction project scheduling" OR "Cost estimation control" OR "Stakeholder management" OR "Construction industry in Libya" OR "Infrastructure development in Libya" OR "Post-conflict reconstruction Libya".

There were 4,310 results from the first search. The next step was to eliminate studies that weren't relevant. Peer-reviewed academic papers written in English and released between 2019 and 2024 were the only ones taken into account. As a consequence, eight papers were chosen as suitable for inclusion. All papers were first screened based on their titles and abstracts before being subjected to full-text analysis.

Specific inclusion and exclusion criteria were used in a thorough screening procedure. Articles that were not pertinent to the context of construction project management or that concentrated on educational applications were not included. The only publications kept were those that had a direct bearing on building project management.

A thorough summary of the chosen publications that are part of this evaluation is given in Table 1.

No	Author & Year	Objective	Method	Results	Limitations
1	Mohamed Imhmed Abuazoom et al., 2019	To improve the quality of performance of construction projects by creating an innovative and motivating human resource	Quantitative research approach targeting individuals in managerial positions; data collected using a simple random sampling technique.	Two HRM practices (information exchange and self- management) significantly influence the quality of project performance.	Limited to the construction sector in Libya, lacks generalizability across other industries or regions, and limited exploration of other HRM practices.
		management framework.			

2	Elkrghli, S., and Almansour (2024)	Identify the factors that impact the management of building risks in Benghazi city.	Quantitative methodology using questionnaires (140 responses).	Highlighted human resource, technical, resource, financial, legal, managerial, and temporal risks as the most significant factors in construction risk management. Emphasized the importance of effective risk management for improving performance and achieving sustainability goals.	Specific limitations not mentioned in the summary, but may include geographical scope (limited to Benghazi city) and reliance on self-reported data.
3	Elsonoki, M. M., and Yunus (2020)	To evaluate virtual engineering (VE) techniques and identify factors influencing VE adoption in Libya's civil construction industry.	Quantitative methodology: Pilot test with 30 participants to validate the Delphi questionnaire, Delphi method (4 rounds) with 31 participants, Slovin's	Reliability test results (Cronbach Alpha: 0.69–0.92) validated study factors; minor adjustments were made during Delphi rounds; data analysis performed with SPSS version 20.	Limited to quantitative findings; potential challenges in generalizing results across diverse settings within Libya's construction industry.
			formula for sample size.		
4	Khalil et al., 2021	To examine the challenges faced by Libya's building sector, an emerging country, in adopting sustainable methods.	Mixed- methods approach: questionnaire survey (134 respondents) and in-depth interviews (10 experts). Statistical analysis was used for surveys; content analysis for interviews.	- Lack of expertise in environmentally sustainable practices.	- Limited to Libya's building sector, which may not generalize to other contexts. - Small number of interviews (10 experts) may not fully capture the breadth of challenges.
5	Alfaggi and Naimi (2022)	To evaluate cost estimation techniques and determine the most efficient roof structure for construction projects in Libya, focusing on decision-making for cost-effective solutions.	Utilized the Fuzzy Analytic Hierarchy Process (AHP) technique	The study demonstrated that decision-makers could effectively prioritize roof solutions using the proposed model. By strategically analyzing roof costs, the research helped identify cost-effective construction methods	Potential challenges in adopting the Fuzzy AHP technique due to resource availability or expertise in other regions. Focus primarily on roof structure costs without broader construction challenges.
6	El-Abidi et al. (2019)	Evaluate the status of prefabricated construction systems in addressing	Qualitative analysis using data from interviews with regional	The housing market in Libya could benefit from prefabricated technology, but	Limited by insufficient expertise and understanding among respondents,

		housing challenges in Libya.	construction professionals.	biases and lack of information hinder its adoption. Most respondents were unable to offer detailed policy or conceptual guidelines for prefabricated building development.	resulting in a lack of actionable policy suggestions.
7	Badi et al., 2022	Explore the risks associated with Libyan construction projects and their impact on project objectives.	<ul style="list-style-type: none"> - Literature review - Interviews with industry experts - On-site visits to project locations - Survey targeting local construction companies - Qualitative and quantitative analysis using grey theory 	<ul style="list-style-type: none"> - 53% of identified risks significantly impact project duration. - 28% of those risks are both certain and severe. - Insufficient human resources, materials, and equipment ranked as the most significant risks. - Strong correlation between risk likelihood and impact. 	<ul style="list-style-type: none"> - Focused only on Libyan construction industry, limiting generalizability. - Results heavily rely on survey responses, which may involve subjective judgment. - Challenges in accounting for dynamic risk factors in rapidly changing environments.
8	Alkadash & Aljileedi (2020)	To investigate the impact of CSR on employee dedication,	Descriptive analyses to explore data characteristics (distribution,	Findings provide insights into the factors influencing the relationship	Limited to English-proficient participants; assumed
		customer retention, environmental sustainability, and community development in the Libyan construction sector.	variability, central tendency) and evaluate participant responses for insights into CSR's impact in the construction industry.	between CSR and individuals in Libya's construction sector, contributing valuable academic perspectives on CSR implementation and outcomes.	accuracy of participant responses.

The published papers are shown chronologically in Table 1 as follows: two in 2019, two in 2020, one in 2021, two in 2022, and one in 2024. All of these publications are linked. In 2023, research activity on project management in Libya's construction industry was noticeably lower than in 2019 and 2022, despite the fact that the issue was still of interest. In order to assess project management success in Libya's construction sector, several studies have looked at a variety of factors, and this body of work is still growing. A complex network of interconnected elements that affect project success is revealed by these research. The significance of good communication, risk mitigation techniques, environmental concerns, and the identification of important success elements are among the major issues that are frequently covered.

Each of these factors is essential to improving the effectiveness and success of building projects in Libya because of its distinct socioeconomic and political environment. Numerous studies have clarified these difficulties and possibilities. A research by Abuazoom, Hanafi and Bin-Ahmad (2019), which examined the effect of HRM practices on the caliber of building projects in Libya, is one noteworthy addition. The report underlined that efficient HRM is crucial to a business's ability to maintain a competitive edge. There is still a dearth of thorough study on labor relations and employment practices in Libya's construction industry, despite its significance in promoting productive worker contributions.

The study used a straightforward random sample procedure to gather data and focused on managerial professionals as important respondents using a quantitative research methodology. The results showed that self-management and information sharing are two HRM practices that have a major impact on project quality performance. Nonetheless, a variety of perspectives on how HRM influences project results are still being

developed. Since implementation has a direct impact on an organization's ability to fulfill goals and retain a cohesive staff, it is still a crucial component of HRM. The study's ultimate goal is to create a dynamic and inspiring HRM framework in order to improve the caliber of construction project performance.

Elkrghli and Almansour (2024) conducted a quantitative study in Benghazi City, employing questionnaires to acquire data on building project hazards and their management. The study's main goal was to pinpoint the major variables affecting risk management in construction projects. In order to investigate the different dangers that arise during municipal development projects and the methods employed to mitigate them, 140 questionnaires were examined. Human resource, technological, resource-related, financial, legal, managerial, and temporal are the seven main risk categories that were found by the research. These results highlight how crucial it is to put in place efficient risk management procedures in order to improve the sustainability and success of building projects. These kinds of solutions are essential to accomplishing project objectives because they lower risks, enhance performance, and boost operational effectiveness. Overall, the research presents a complete overview of the difficulties and variables driving construction risk management in Benghazi.

Elsonoki and Yunus (2020) performed a research in May 2020 that reported first findings on the use of virtual engineering (VE) techniques within Libya's civil construction sector. Utilizing a quantitative research technique, the study efficiently attained its aims. To make sure respondents understood the questionnaire completely, a pilot test with 30 participants was conducted before the main Delphi study. As a pre-validation measure, this pilot research assisted in validating and confirming the format of the questionnaire used in the Delphi rounds. The Delphi research itself consisted of four rounds with 31 participants, during which only minor adjustments were made to the instrument. SPSS version 20 was used to analyze the data. Cronbach's Alpha scores, which varied from 0.69 to 0.92—indicating acceptable to outstanding internal consistency—were used to confirm the reliability of the study's variables. The researchers used Slovin's technique to calculate the sample size for the main survey and came to the conclusion that a minimum of 390 participants were required. After then, survey participants were chosen using a straightforward random selection procedure.

Furthermore, Khalil, Rathnasinghe and Kulatunga (2021), investigated the difficulties Libya's building industry, a nascent sector, faces in pursuing sustainable methods. In-depth interviews with pertinent specialists and a questionnaire survey were both part of the study's mixed-methods strategy. A total of 134 questionnaires were sent out, and statistical analysis was done on them. Ten experts were chosen for interviews based on the survey findings, and content analysis was used to examine the qualitative information acquired. The results showed that Libya's building industry lacked thorough knowledge of ecologically friendly methods.

The lack of strict laws, construction codes, and environmental requirements was also noted as a significant obstacle. The inefficiency of supporting institutions' use of sustainability principles was another major obstacle. The study found a strong correlation between greater knowledge and awareness in the sector and a more thorough understanding of sustainability.

Alfaggi and Naimi (2022) carried out a thorough analysis of building projects in Libya in 2022, pointing out recurrent problems brought on by insufficient knowledge and experience, especially with regard to cost estimating techniques. Their study sought to provide practical methods for predicting building costs using a variety of approaches. An internationally known algorithm served as the foundation for one noteworthy and trustworthy optimization technique used in the study. The Fuzzy Analytic Hierarchy Process (AHP) was used in the study to determine the most economical roof structure. One-way and two-way flat slabs, post-tension slabs, hollow core slabs, waffle slabs, and pre-tension slabs were among the roofing solutions that were examined. Five essential components were used to evaluate these systems in actual building settings in Libya. The examination evaluated all essential variables such as purchase of materials, labor, equipment, transportation expenses, and on-site waste management. The findings show that decision-makers might strategically employ such models to prioritize and optimize roof structure costs. To evaluate many options and choose the best one, a realistic scenario was created. In order to enhance cost estimation and project length management in highway building, the study concludes by highlighting the significance of such analysis in the early planning phases. Project managers may greatly speed up project completion by choosing the most cost-effective roofing choice.

The goal of Youssef, Mohamed and Balah, (2024) study was to increase decision-makers' comprehension of project delivery principles. To assess several Project Delivery Systems (PDSs) relevant to Libyan building projects, a fuzzy logic model was used. Both established standards and professional advice were included in this evaluation. The study yielded two main results: first, it used fuzzy theory to examine a framework for making decisions on how to carry out building projects in Libya; second, it determined the pertinent factors affecting this process. Libya's construction sector employs a number of project delivery techniques, such as Design-Build, Design-Bid-Build, Construction Manager at Risk, and Construction Manager as Agent.

El-Abidi et al. (2019) analyzed the current state of prefabricated construction systems and their ability to address Libya's housing needs. The research heavily relies on the opinions of local building industry specialists. The data gathered from interviews was utilized for qualitative analysis. The researchers' findings indicate that the usage of prefabricated building technologies may benefit the Libyan housing sector. However, due to a lack

of basic information, comprehension, and experience, many government officials and aspiring specialists have biased views against the use of prefabricated systems. Furthermore, the majority of respondents were unable to provide comprehensive conceptual frameworks or rules that may guide the expansion of prefabricated buildings in Libya.

A thorough investigation on the dangers connected to building projects in Libya and how they affect project goals was carried out by Badi, Bouraima and Jibril (2022). The study included site visits to ongoing building projects, interviews with specialists in the field, and a thorough evaluation of the body of current literature. A survey was started and sent to a number of nearby construction businesses in order to gather information on any hazards. Following survey completion, the hazards were evaluated using both qualitative and quantitative approaches to determine their likelihood and severity. The results showed that 28% of the risks were categorized as both extremely probable and severe, and 53% of the hazards had a major impact on the project's total length. Additionally, a substantial link between the risk results and their actual chance of occurrence was found by the study. The study's use of grey theory analysis led it to the conclusion that inadequate equipment, materials, and human resources posed the most dangers.

Alkadash and Aljileedi (2020) investigated the effects of corporate social responsibility (CSR) on community development, environmental sustainability, employee commitment, and customer retention in the Libyan construction industry. The study's conclusions provide scholars with important new information on the variables affecting the interaction between CSR programs and workers in Libya's construction sector. The overall features of the gathered data, such as its distribution, variability, and central tendency, were investigated using descriptive analysis.

Furthermore, the study made it possible for a sizable portion of participants to examine and assess their answers, which made it easier to pinpoint unique traits in the research sample. One of the study's main limitations was that only people who could speak English well could access the questionnaire. Additionally, the dependability of the results may be impacted because it was presumed that the participants' replies were accurate.

4.0 Discussion

The review unequivocally shows that construction project management accounts for a significant amount of the literature. The purpose of this study is to investigate the factors that are frequently employed in Libyan project management evaluations. According to the literature, the private sector receives relatively little attention in the majority of the reviewed studies, which focus on construction project management in the public sector (e.g., El-Abidi et al., 2019; Mohamed et al., 2019; Elsonoki & Yunus, 2020; Alkadash & Aljileedi, 2020; Khalil et al., 2021; Alfaggi & Naimi, 2022; Badi et al., 2022). Many of these studies explicitly focus on risk management in the construction industry in Libya. For instance, Elkrigli et al. (2024) and Badi et al. (2022) mostly ignore the management of various project phases in favor of concentrating on risk management. Other studies, on the other hand, look on various aspects of construction management. Human resource management is examined by Abuazoom et al. (2019), who highlight how it may increase organizational competitiveness and quality. Elsonoki and Yunus (2020) demonstrate technical development in the building business by highlighting innovation via the use of Virtual Engineering (VE). The difficulties in implementing sustainable practices in Libya's building industry are examined by Khalil et al. (2021). By using the Fuzzy Analytic Hierarchy Process (AHP) to determine the most economical roof structure, Alfaggi and Naimi (2022) also evaluate cost estimating methods in Libyan building projects.

Youssef et al. (2024) used a fuzzy model to assess Project Delivery Systems (PDS) in an effort to enhance decision-making in construction projects. Their research centered on determining if several PDS alternatives, including design-build and design-bid-build, were appropriate for building projects in Libya. Similarly, El-Abidi et al. (2019) examined the practicality of prefabricated building systems as a solution to Libya's housing problems and examined their potential in addressing the country's housing concerns. The research by Alkadash and Aljileedi (2020), which examined the effects of Corporate Social Responsibility (CSR) on community development, environmental sustainability, employee commitment, and customer retention within the Libyan construction industry, is another noteworthy addition.

These studies provide insightful information about the difficulties the Libyan construction industry faces, including concerns about project delivery techniques, risk management, cost estimation, and sustainability. In order to ensure greater sample representation and improve methodological rigor, future research should strive to incorporate these topics into an all-encompassing framework. Such initiatives will support the ongoing development of Libyan building practices and provide a better knowledge of the variables driving them.

5.0 Conclusion

The literature on project management techniques in the Libyan construction sector was examined and summarized in this study. The results show that although the construction industry plays a key role in Libya's economy, little study has been done to assess how well project management techniques work in this particular

setting. The majority of research has concentrated on project results and success determinants, paying little attention to the real-world implementation of management methods designed for the Libyan context. The assessment also discovered that language barriers and limited data sources sometimes limit the scope of current research. As a result, future studies have to include a variety of databases, Arabic-language publications, and models that take into account the socioeconomic and post-conflict realities of Libya. To improve project delivery, reduce cost overruns, and promote national development goals, the construction industry must strengthen its project management procedures.

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