

The Challenges in Completing Site Development Projects in Saudi Arabia

Master's Degree Plan

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ABSTRACT

For a long time, site development projects in Saudi Arabia are experiencing progressive delays in delivery schedules, hindering the country's sustainable development agenda as envisioned in Vision 2030. Numerous studies have been undertaken to identify factors hindering timely completion of site development projects, but a notable gap still persists particularly on a comprehensive examination of the internal and external operating environment to identify the inhibiting factors, their influence on outcomes, and strategies and best practices to address them thereby improving completion time for site development projects in the Saudi construction industry. Therefore, this study presents a comprehensive examination of the multifaceted challenges hindering timely completion of site development projects and recommends strategies to address them. Using a qualitative approach comprising of a comprehensive literature review and in-depth interviews on project managers, site engineers and workers in the Saudi construction industry, the study found that there are numerous internal factors such as variations in project design, specifications and scope of projects, inadequate skilled labour, payment delays and communication challenges hindering timely completion of site development projects. Inspired by the PESTEL analysis tool, the study scans the external operating environment for site development and identifies political, economic, socio-cultural, technological, environmental and legal challenges hindering timely completion of site development projects in the Saudi construction industry. The study recommends specific strategies to address specific challenges highlighting the need for adoption of emerging technologies, training and development of staff, adoption of sustainable construction practices and streamlining regulatory process to make them simpler and accessible to stakeholders. The study recommends future research to explore the legal implications of data privacy, cybersecurity, and intellectual property rights in the context of these emerging technologies.

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CHAPTER 1.0 INTRODUCTION

1.1 Background of the study

The construction industry is playing a critical role owing to its growing contribution to the Saudi Arabian GDP and employment, which are critical in driving economic growth in Saudi Arabia. Furthermore, the country is undergoing rapid urbanization and infrastructure development plays a critical role in this, as well as the ambitious economic diversification agenda outlined in its Vision 2030. However, the country's construction sector is experiencing delays in project completion, which has far-reaching consequences including rising project costs, job losses, loss of investor confidence, etc. (Alajmi & Memon, 2022).

Site development projects in Saudi Arabia are increasingly facing multifaceted challenges stemming from numerous factors including uncertain regulatory frameworks, environmental challenges, frequent economic fluctuations as well as cultural nuances that serve as a significant impediment to project completion, which leads to project delays, cost overruns, and poor quality (Alsulamy, 2022). Therefore, understanding the challenges that site developments face in Saudi Arabia pivotal for enhancing project management strategies to create sustainable development in this region.

1.2 Problem Statement

Despite the nation's ambitious Vision 2030 objectives and rapid urbanization that require a robust construction sector, site development projects in Saudi Arabia are experiencing persistent hurdles, impeding progress, and thwarting sustainable development efforts that are put in place to address them (Alshehri, 2019). Ranging from rigid regulatory frameworks to economic fluctuations, environmental concerns and cultural nuances that are exacerbating negative project outcomes, the existing solutions have done little to unlock the potential of the Saudi construction industry. Therefore, there is need for innovative solutions that could bridge the widening gap, between project expectations and outcomes, owing to the multiple challenges facing site development projects. (Abduljawwad, Almaktoom, & Abduljawwad, 2021).

Numerous studies have been undertaken to identifying the challenges bedeviling completion of construction projects in Saudi Arabia. However, there remains a notable gap in the existing body of literature particularly lack a comprehensive understanding of the interplay between key inhibiting factors and their collective influence on project outcomes (Alajmi & Memon, 2022). Existing studies often examine individual aspects, such as regulatory challenges or environmental

concerns, etc. that hinder completion of site development projects, lacking a holistic perspective involving both internal and external challenges affecting effective project management in the prevailing conditions leading to persistent delays, cost and quality constraints (Alshakhrit, Alshakhrit, Supeni & Zahari, 2019).

1.3 Study Aim and Purpose

The study aims to comprehensively investigate the multifaceted challenges hindering timely completion of site development projects in Saudi Arabia, with emphasis on understanding the dynamic interactions between the evolving technology, regulatory frameworks, environmental considerations, and cultural nuances, among other factors. By examining these complex interdependencies, the study will provide valuable insights into the current causes of project delays, cost overruns, and quality concerns. This will in turn facilitate development of targeted strategies and innovative interventions that could enhance project management practices and foster sustainable development infrastructure and economic development in Saudi Arabia and the middle east at large.

1.4 Research Questions

1.4.1 Main research question.

What are the key challenges hindering completion of site development projects in Saudi Arabia, how can they be effectively addressed?

1.4.1 Other research questions

1. What are the internal factors hindering timely completion of site development projects in Saudi Arabia's construction industry?
2. What are the political challenges hindering timely completion of site development projects in Saudi Arabia?
3. How do economic fluctuations affect timely completion of site development projects in Saudi Arabia construction industry?
4. What socio-cultural factors hinder timely completion of site development projects in the Saudi Arabian construction industry?
5. What technological factors hinder timely completion of site development projects in the Saudi Arabian construction industry?
6. What environmental factors pose challenges to timely completion of site development projects in Saudi Arabia's construction industry?

7. What legal and regulatory factors pose challenges to timely completion of site development projects in Saudi Arabia's construction industry?
8. What strategies, best practices and critical success factors could be employed to effectively address the challenges in hindering timely delivery of site development projects in Saudi Arabia?
9. What recommendations could help policymakers, developers, contractors, and other stakeholders in improving project management practices to foster sustainable development in site development projects in Saudi Arabia's construction industry?

1.5 Relevance and significance of the study

The study examining the challenges in completing site development projects in Saudi Arabia holds immense relevance, timeliness, and significance to the Saudi Arabia construction industry in numerous ways. With the country's ambitious Vision 2030 goals as well as the rapid urbanization drive, site development projects play a critical role in driving economic growth, diversification and enhancing infrastructural development in line with the country's Vision 2030. Therefore, understanding and addressing the identified challenges effectively could enhance achievement of the nation's developmental endeavors and enhancing and improve the quality of life for Saudi Arabians.

The study comes at a time when Saudi Arabia is pursuing critical socio-economic transformations and therefore experiencing dynamic challenges including rapid technological advancements, regulatory evolution, and environmental concerns that threaten realization of its long-term development goals. Therefore, the findings from this research could provide timely insights and recommendations for enhanced decision making and sustainability in management of site development projects.

The significance of the study extends to holding potential for informing policy formulation, strategic planning, and decision-making efforts in management of site development projects in Saudi Arabia. By identifying key obstacles and management strategies, the study can contribute to improving project outcomes, reducing delays, minimizing costs, and promoting sustainable development in the region.

CHAPTER 2. 0 LITERATURE REVIEW

2.1 Challenges that development projects face in Saudi Arabia

In Saudi Arabia, site development projects face numerous challenges ranging from regulatory, environmental, economic, political, cultural and technological dimensions. In this country construction projects face regulatory challenges such as complex permitting processes, bureaucratic inefficiencies, etc. leading to project delays, administrative challenges, etc. The regulatory environment in Saudi Arabia experiences periodic revisions, amendments and updates that introduce significant uncertainty to the project planning and execution process hindering timely completion of construction projects (Fathalizadeh et al., 2021).

In their study, Ametepey, Aigbavboa & Ansah (2015) identified cultural resistance to change, low government commitment, low professional knowledge and poor legislation of the construction industry, and group other challenges into financial, political, leadership, technological and socio-cultural barriers hindering timely completion of construction projects in developing countries.

A recent study by Alshehri (2019) noted that environmental concerns present some of the major hindrances to completion of site development projects identifying particular issues including scarcity of water due to desertification, and poor waste management as some of the major barriers to timely completion of projects in Saudi Arabia. As Mohammed & Ishak (2024) noted, balancing infrastructural development with environmental sustainability in Saudi Arabia needs innovative solutions, coupled with proactive measures to mitigate ecological risks presented by the unfavorable environment conditions experienced in the country.

In another study, Alsulamy (2022) cited economic fluctuations caused by global oil price volatility, as one of the major factors with profound impact on completion of site development projects in Saudi Arabia. The study, intimated that frequent fluctuations in oil revenues have a significant influence on government spending, and infrastructural projects bear the greatest budgetary cuts that eventually affect site development project timelines, cost and sometimes quality.

The study by Mohammed & Ishak (2024) further noted that cultural nuances also have a significant influence development project dynamic such as stakeholder relations in Saudi Arabia. I. Saudi Arabia's socio-cultural also influences aspects such as community engagement in the development projects, and cultural norms, traditions as well as societal expectations have a significant influence on the decision-making processes, and conflict resolution approaches. in his doctoral thesis, Almathami (2020) posits that understanding cultural sensitivities is critical for effective

communication, collaboration as well as conflict resolution among the project stakeholders whenever conflict arises.

While emphasizing the significant role of technological innovations in enhancing key site development project outcomes including efficiency of the construction process, communication and collaboration, improved productivity, etc., studies such as Alhammadi (2022) note that the cost of deploying the current technological innovations is quite and the risk of obsolescence due to rapid technological evolutions characterized with such technologies present significant challenges to their deployment. In Saudi Arabia, concerns have been raised to the availability of skills and competencies to adequately use modern technologies such as Artificial Intelligence, Automation and Big Data Analytics to enhance outcomes for construction projects.

2.2. Strategies, best practices and critical success factors

In a study addressing challenges experienced in the Saudi Arabia construction industry, Alshehri (2019) noted that project managers need to ensure compliance with regulatory requirements by acquiring the necessary permits on time, and collaborate closely with government regulatory agencies and other stakeholders for smooth regulatory engagement and avoid delays.

In their study, Ahmad et al. (2023) advised that leveraging advanced technologies including Building Information Modeling (BIM), use of drones, big data analytics, project management software, etc. could lead to enhanced project efficiency, effective communication, and collaboration, etc. that are critical for timely completion of construction projects. The authors call for regular training and capacity building for project teams to enable effective utilization of such technologies for improved project outcomes.

In another study, Al-Tmeemy (2019) maintained that putting in robust risk assessment and management strategies could help in identifying and mitigating potential risks early and throughout the project lifecycle to avoid unforeseen challenges that could lead to negative project outcomes. In another study, Mohammed & Ishak (2024) note that conducting comprehensive risk assessments, instituting contingency plans as well as maintaining open communication between key stakeholders are critical for timely project completion.

The practice of stakeholder engagement has also been emphasized. For instance, Almathami (2020) posits that engaging with key stakeholders such as government agencies, local communities as well as project sponsors has a potential of fostering collaboration and support for the construction project objectives. In their study, Ahmad et al. (2023) add that establishing clear

communication channels, commitment towards addressing key stakeholder concerns, and seeking for feedback could foster stakeholder satisfaction and construction project success.

Focusing on addressing key challenges facing construction projects in Saudi Arabia, Alshehri (2019) invoked the practice of sustainability, noting that adopting sustainable practices and integrating them into the project design, construction process, and entire project management practices is critical for long-term environmental as well as social stewardship. The author advocates for resource efficiency, waste reduction, and use of renewable energy, which is in line with the global sustainability goals for enhanced construction project resilience and adaptability.

In their study, Altahtoh & Alaskar (2018) support formation of strategic partnerships with reputable suppliers, contractors as well as consultants to minimize risks and enhance project delivery capabilities. The authors maintain that selecting partners that have proven track records as well as complementary expertise could foster collaboration and shared goals, which significantly addresses most obstacles to timely project completion.

In their study, Ahmad et al. (2022) intimate that embracing a culture of continuous improvement could enable project teams to adapt to the evolving project landscape and use the lessons learned from experiences garnered from previous projects to enhance efficiency of current project activities, processes and operations. The authors maintain that conducting post-project reviews, asking for feedback, and implementing the corrective actions realized could enhance the outcomes of the ongoing construction project.

2.3 Theoretical /Conceptual Framework

The research uses SWOT Analysis and PESTEL Analysis to identify the major challenges hindering timely completion of site development projects in Saudi Arabia.

A SWOT (Strengths, Weaknesses, Opportunities, Threats) analysis is critical in examining the internal factors (strengths and weaknesses) as well as the external factors (opportunities and threats) affecting a particular project or organization. In this study, a SWOT analysis is used to identify Internal strengths and weaknesses in the construction company where the research is carried out (Shabanova, Ismagilova, Salimov & Akhmadeev, 2015).

On the other hand, a PESTEL Analysis (Political, Economic, Social, Technological, Environmental, Legal) analysis has been praised for its ability to assess the broader external or macro-environmental issues affecting the performance of many projects or the larger construction industry. In this study, PESTEL analysis will be used to examine the political stability, economic

trends, societal dynamics, technological advancements, environmental concerns, and legal frameworks that influence outcomes of site development projects in Saudi Arabia (Shabanova et al., 2015).

Combined, these tools helped to provide a holistic view of both the construction companies and the construction industry as well as the internal and external factors offering a comprehensive understanding of the micro and macro-environmental factors hindering timely completion of construction projects in Saudi Arabia.

Initial findings of the SWOT and PESTEL analyses are summarized in table 1 and table 2 below.

Table 1: SWOT Analysis

Strengths	Weaknesses
- Abundant natural resources supporting construction projects	- Bureaucratic red tape and complex regulatory processes
- Government investment in infrastructure development	- Limited skilled labor force
- Strategic location and connectivity for trade and logistics	- Dependency on oil revenues, susceptible to economic fluctuations
- Strong government support for Vision 2030 initiatives	- Environmental concerns and scarcity of water resources
Opportunities	Threats
- Adoption of advanced technologies for project efficiency	- Geopolitical tensions impacting project financing and resources
- Diversification of economy reducing reliance on oil	- Volatility in global oil prices affecting project funding
- Growing demand for sustainable construction practices	- Socio-cultural factors affecting project collaboration and communication
- Potential for international partnerships and investments	- Legal and regulatory changes affecting project timelines and costs

Table 2: PESTEL Analysis

Political	Economic
- Stable political environment supporting long-term project planning	- Dependency on oil revenues leading to economic volatility
- Government initiatives like Vision 2030 driving infrastructure development	- Impact of global economic trends on project financing and investments

Political	Economic
- Regulatory reforms to attract foreign investment in construction sector	- Currency fluctuations affecting project costs and financing
Social	Technological
- Cultural diversity influencing project dynamics and stakeholder engagement	- Adoption of advanced construction technologies improving project efficiency
- Growing urbanization driving demand for infrastructure development	- Integration of Building Information Modeling (BIM) for better project coordination
- Community expectations for sustainable and socially responsible projects	- Challenges in implementing technology due to workforce skill gaps
Environmental	Legal
- Environmental concerns such as water scarcity and waste management	- Regulatory compliance and permitting processes impacting project timelines
- Increasing focus on sustainable construction practices	- Legal frameworks governing land acquisition and property rights
- Potential for environmental impact assessments influencing project design	- Legal disputes and contractual issues affecting project continuity

CHAPTER 3.0 METHODOLOGY

3.1 Research Design

The research adopted a qualitative research design comprising of a comprehensive literature review and in-depth interviews among key players in the construction industry in Saudi Arabia. The literature review presented a comprehensive understanding of the existing knowledge exploring the key findings on key trends about the challenges hindering timely completion of site development projects in Saudi Arabia and strategies, critical success factors and best practices for timely completion of construction projects. As intimated in Rubin & Rubin (2012), this formed the foundation for the research. On the other side, the in-depth interviews captured the nuances, insights and perspectives of key stakeholders involved in management of construction projects in Saudi Arabia. As Creswell & Creswell (2017) denote, open-ended interviews allow for probing questions, exploration of complex issues and clarification of issues, thereby enriching the research findings.

3.2 Target Population

The research sought to conduct interviews on key stakeholders in construction project management in Madina, Saudi Arabia. The research involved a project manager, procurement Manager, site engineer, safety officer and a construction worker in Madina to develop a comprehensive understanding of the challenges facing construction projects in Saudi Arabia and recommend strategies, critical success factors and best practices for timely completion of construction projects in the country.

3.3 Sampling Method and Sample size

The research used purposive sampling to identify information-rich respondents who have the requisite experiences and insights to share to the study. As Creswell & Plano Clark (2011) posit, purposive sampling allows for flexibility for the researcher to recruit targeted respondent who can contribute meaningful insights to the study. Given that the research adopted a qualitative approach of using in-depth interviews, and recruiting respondents through non-probabilistic purposive sampling method, use of a small sample size is considered appropriate. As Vasileiou et al. (2018) noted, the appropriateness of a sample size is determined by the richness of the information possessed by the selected respondents. Therefore, this study recruited 5 information-rich participants to share their insights to enrich findings from the literature review.

3.4 Data collection

Data collection in this study was undertaken through in-depth interviews with selected respondents. The interviews were guided using a semi-structured interview guide prepared in advance. As Newcomer et al. (2015), a semi-structured interview guide is important in ensuring all questions are covered, and mitigates problems of subjectivity and mixing of issues in the interview process.

3.5 Data Analysis

The data collected was analysed through a thematic analysis and the findings organized into major themes and narratives. As explained by Dawadi (2020), a thematic analysis is a qualitative research method used to identify, analyze, and interpret patterns or themes within qualitative data. It involves systematically coding data to uncover recurrent themes or patterns of meaning. Through a process of coding and categorizing, themes emerge, capturing the underlying essence or narrative of the data. As Namey et al. (2008) denote, a thematic analysis offers flexibility in its approach, allowing researchers to explore both manifest and latent content within the data, providing rich insights into participants' experiences, perspectives, and the phenomenon under investigation.

3.6 Ethical considerations

The research was conducted following ethical considerations guiding qualitative studies. This included obtaining consent for data collection and ensuring transparency about the research purpose and potential impacts. Before undertaking the study, informed consent from participants was sought involving clear communication about their rights, risks, benefits, and their voluntary agreement to participate as intimate in Creswell (2013). All respondents in the study gave informed consent. In this study, the privacy and confidentiality of participants was paramount, and safeguards including use of anonymity or pseudonymity was used to protect the identities of participants. As intimated in Creswell (2013), respecting these ethical principles upholds participants' autonomy, dignity, and well-being throughout the research process.

3.7 Limitations of this study design

Some of the major limitations in this study include limited generalizability owing to the purposeful nature of selection of respondents. However, as indicated in the description of the target population above, measures were taken to take a representative from major positions involved in the day-to-day running of construction projects. Other limitations included potential biases inherent in qualitative methods, such as researcher subjectivity and interpretation bias. However, research quality measures such as triangulation, employing multiple data sources and methods helped to enhance the validity and reliability of qualitative research findings as intimated by Creswell (2013). Furthermore, the interviews were time-consuming as the data collected had to be recorded, transcribed and analysed into major themes.

CHAPTER 4.0 STUDY FINDINGS AND DISCUSSIONS

This chapter presents the findings of the study in form of themes explained in narratives, and compared with earlier findings in the literature review and earlier sections of the study to identify the challenges and obstacles hindering timely completion of site development projects in Saudi Arabia's construction industry. The chapter will also present the findings about strategies, best practices and critical factors for timely completion of site development projects and findings on key recommendations to developers, policy makers and other key stakeholders towards timely project completion and sustainable growth in site development projects in Saudi Arabia.

As indicated in the conceptual framework, the discussions about the challenges hindering timely completion of site development projects in Saudi Arabia will be guided by the SWOT analysis to identify internal challenges to the companies involved in building the site development projects and a PESTEL analysis to discuss the external challenges that hinder timely completion of site development projects in the Saudi Arabia construction industry. Therefore, the first part of this chapter discusses the internal challenges that affect particular construction companies involved in execution of site development projects guided by the weaknesses and threats aspects of the SWOT analysis and the subsequent sections will explore the political, economic, sociocultural, technological, environmental and legal challenges hindering timely completion of site development project guided by the PESTEL analysis. Finally, the chapter will explore the strategies, best practices and critical factors that could address the identified challenges and enhance delivery times for site development projects in Saudi Arabia.

4.1 Internal Challenges

Respondents in the study were asked to identify some of the internal challenges hindering timely completion of site development projects in Saudi Arabia, their responses are explored as follows.

Variations in project scope and specifications

Respondents in the study identified changes in project scope and specifications as some of the major causes of delays in the delivery of construction projects. For instance, while responding to the question about the internal factors hindering timely completion of site development projects in Saudi Arabia, the first respondent said.

“Quite often, site development projects are subjected to frequent design alterations and revisions that need additional time for approvals. Sometimes these changes come in late

necessitating demolition and reconstruction of critical sections of projects leading to not only delays, but also project cost overruns, (Respondent 1).

In his response to the above question, the second respondent reiterated,

“In most cases, site development projects suffer from frequent adjustments to the existing project plans, which disrupts workflows and cause delays in delivery of site development projects as scheduled” (Respondent 2).

This concurs with findings in numerous earlier studies that have identified variations in project design, specifications and scope as one of the major causes of project delays. For instance, Lindhard & Wandahl (2014) identified changes in project design, and Alshehri (2019) echoed these findings indicating that variations in project scope and design often necessitate additional approvals, resource allocations and adjustment to the current project plans which disrupts the normal workflows hindering completion of site development projects as a scheduled.

Progressive delays in payments

Respondents in the interviews identified delays in payment for certifications issued as part of the major factors hindering timely completion of site development projects in Saudi Arabia's construction industry. For instance, while responding to the question on the internal factors hindering timely completion of site development projects in Saudi Arabia, the third respondent, a site engineer for a leading construction company in Saudi Arabia exclaimed,

“Late payments, in the Saudi construction industry, the problem of delayed payment of certifications is rampant. It causes cash flow problems leading to other challenges such as payment to subcontractors and may escalate to disputes that disturb the relationship between contractors and project owners” (Respondent 3).

While responding to the same question, the fifth respondent, a construction worker, reiterated the problem of delays in payment saying,

“In most cases, certified phases of the project or the whole project suffers from delayed payments, and this means construction workers could not be paid promptly, which drains their morale and eventually reduces worker productivity” (respondent 5).

These findings concur with earlier findings in the study by Alinaitwe, Apolot & Tindiwensi (2013) who indicated that delayed payments are one of the major causes of delays in site development

projects in developing countries, and Rao et al. (2016) who noted that delays in payment of certifications leads to cashflow challenges hindering timely delivery of construction projects.

Inadequate skilled labour

Study findings, as indicated in the responses of the participants in the interviews identified lack of skilled labour as one of the major contributors to delays in delivery of site construction projects. For instance, while responding to the question about the internal factors hindering timely completion of site development projects in Saudi Arabia, the first respondent exclaimed,

“Labour. We have an acute shortage of skilled labour, Saudi Arabia does not attract highly skilled personnel globally as highly qualified personnel often focus on the West for greener pastures” (respondent 1).

In his response to the same question, the second respondent reiterated the challenge of lack of skilled labour saying,

“There is a challenge in retaining our skilled personnel. We depend on expatriates who often go back to their countries or seek greener pastures, particularly better pay in developed countries in Europe and other regions,” (respondent 2).

These findings echo findings in numerous early studies that have identified the problem of lack of skilled labour and its impact on delivery of construction projects in Saudi Arabia and other developing countries. For instance, Almannae (2014) in his doctoral thesis identified inadequate skilled and non-skilled labour as a major cause of delays in construction projects in the UAE and the larger Middle East. furthermore, earlier studies such as McAnulty and Baroudi (2010) had identified failure to attract and retain skilled labour as a major set back to timely delivery of construction projects in developing countries including Saudi Arabia. In his study seeking to recommend measures to address challenges causing delays to project delivery in Saudi Arabia, Alshehri (2019) extensively discussed the problem of skilled labour identifying issues such as failure to attract highly skilled personnel, low wages for construction workers, and unfavorable working conditions leading to low retention of skilled construction workers in the Saudi construction industry and the larger Middle East.

Communication challenges

Poor communication emerged as one of the dominant themes in the discussions about factors hindering timely completion of site development projects in Saudi Arabia. Respondents in the study identified how communication challenges arising from language barrier often hinders timely completion of construction projects in the Saudi construction industry. For instance, when responding to the question about the internal factors hindering timely completion of site development projects in Saudi Arabia, the first respondent noted,

“In Saudi Arabia, people use Arabic as their local language, there is limited use of major international languages, particularly English and French. When workers and experts from foreign countries come to work in Saudi Arabia, they often find it difficult to communicate to the locals” (respondent1).

In his response to the same question, the fourth respondent a construction worker reiterated,

“I am originally from East Africa, when I came here, communication barrier really affected my productivity. Today, I am much better but I believe it could be much better if the country was speaking English as their second language. Every international worker, or expatriate suffers from communication barrier,” (respondent 4).

These findings concur with numerous early findings that have identified communication barrier as one of the major factors causing delays in the delivery of construction projects in Saudi Arabia. For instance, Alshehri (2019) identified poor communication as one of the major causes of delays in delivery of construction projects in Saudi Arabia. In addition, more studies including Almathami (2020) as well as Ahmad et al. (2023) identified communication failures as some of the major factors hindering timely delivery of site development projects in Saudi Arabia.

4.2 External Factors

Using the guidelines established in the PESTEL analysis, the study sought to identify some of the external factors beyond the control of the construction company that negatively impact timely delivery of site development projects in Saudi Arabia. This section presents the responses of the participants in the in-depth interviews identifying the major political, economic, sociocultural, technological, environmental and legal challenges hindering timely completion of site development projects in Saudi Arabia.

4.2.1 Political challenges

Findings from both literature review identify political factors often referred to as regulatory environment in the interviews as one of the major causes of delays in delivery of construction projects in the Saudi Arabia construction industry. This section presents some of the major political issues negatively impacting delivery of projects identified from the interviews held.

Complex permit issuing process

The problem of complex permit processes was dominant throughout the interviews indicating that it is one of the major hindrances to timely project completion in the Saudi construction industry. For instance, in his response to the question about the specific regulatory hurdles hindering site development projects in Saudi Arabia, the first respondent asserted,

“Regulatory hurdles do significantly hinder completion of site development projects. Navigating the complex permit processes is a time-consuming and cumbersome exercise that leads to lose of critical time, and sometimes resources,” (respondent 1).

In his response to the above question, the third respondent reiterated,

“One major obstacle is the complexity of permit processes, which always involves navigating through multiple regulatory bodies and bureaucratic procedures, which leads to time wastage and loss of financial resources navigating such complex regulatory systems” (respondent 3).

In his response to the same question, the fifth respondent exclaimed,

“Obtaining permits for site development projects requires one to navigate through multiple bureaucratic procedures and dealing with various regulatory bodies, which often leads to delays in project commencement and completion, impacting our schedules negatively” (respondent 5).

These findings concur with earlier findings in the study by Alsuliman (2019) identifying administrative and regulatory challenges including stringent permit requirements as major cause of delays in the delivery of construction projects in Saudi Arabia. The findings also agree with earlier assertions by Al-Kharashi & Skitmore (2009) that long administrative processes buy time

delaying initiation and eventually completion of construction projects in the Saudi construction industry.

Bureaucratic red tapes

Study findings point to presence of long bureaucratic processes that present significant obstacles in the pursuit of critical permits, documentation and approvals that are required for project execution in the Saudi construction industry. For instance, while responding to the question about the political and regulatory challenges hindering timely completion of site development projects in Saudi Arabia, the second respondent lamented,

“One primary obstacle hindering timely completion of project is the complexity of permit processes, which often involves navigating through multiple regulatory bodies and bureaucratic procedures that lead to delays in obtaining necessary approvals and clearances hindering timely completion of projects” (respondent 2).

In his response to the same question, the respondent reiterated the challenge of bureaucratic red tapes, saying,

“The involvement of multiple regulatory bodies, each with its own set of requirements and procedures, adds layers of bureaucracy, leading to delays in obtaining necessary approvals” (respondent 1).

In his response to the above question, the third respondent reiterated,

“One significant obstacle is the complexity of permit processes, which often involve navigating through multiple regulatory bodies and bureaucratic procedures that cause delays in project delivery schedules,” (respondent 3).

These findings reinforce numerous findings in early studies such as Alsuliman (2019), Fathalizadeh et al. (2021) that have identified bureaucratic red tapes as one of the major contributors to delays in delivery of construction projects in Saudi Arabia. The findings also concur with findings in the study by (Yap, Goay, Woon & Skitmore (2019) detailing how bureaucratic red tapes complicate regulatory processes adding many agencies for regulating various aspects of the construction process which leads to delays in obtaining critical permits, approvals and clearances that are required for project execution to be carried out smoothly.

Government policy changes

Study findings identification changes in government policy as part of the causes of delays in delivery of construction projects in Saudi Arabia. For instance, when responding to the question about challenges hindering timely completion of site development projects in Saudi Arabia, the first respondent decried,

“Issues related to government changes in land ownership regulations and foreign investment restrictions can introduce additional challenges, further complicating project development” (respondent 1).

A similar response was obtained from the third respondent saying,

“Additionally, issues related to land ownership regulations as well as foreign investment guidelines could derail project development efforts causing major delays in project delivery schedules” (respondent 3).

These findings reflect the same position taken by Khahro et al. (2023) in their study whereby they established that changes in government policies, regulations, and priorities could require changes in project specification, nature of contracts and funding introducing significant uncertainties and delays in the delivery of construction projects in Saudi Arabia.

4.2.2 Economic challenges

Study findings indicate that economic fluctuations have an impact on the delivery of construction projects in the Saudi construction industry as explored below.

Over-reliance on oil revenues

All respondents in the interviews noted that the Saudi Arabian construction industry and the larger economy heavily relies on revenues from oil, and therefore fluctuations in the international oil prices have a direct impact on construction projects. For instance, while responding to the question on how do economic fluctuations affect timely completion of site development projects in Saudi Arabia construction industry, the first respondent decried,

“The Saudi economy heavily relies on oil revenues, which subjects it to vulnerability to fluctuations in global oil prices, and therefore, construction projects often experience financial constraints and subsequently delays during economic downturns,” (respondent 1).

While responding to the same question, the third respondent intimated,

“Fluctuations in the global oil prices have a significant influence government spending and investment patterns, which in turn influences the demand for construction projects in the Saudi Arabian construction industry that greatly relies on government funded projects,” (respondent 3).

These findings reinforce earlier findings in the study by Alsulamy (2022) that identified over-reliance on oil revenues that exposes construction projects to economic fluctuations as oil prices change. The study further confirms the assertions of the study by Alshuwaikhat & Mohammed (2017) that economic fluctuations have an impact on the demand of construction project such that construction projects could face financial constraints during economic downturns leading to delays in completion and delivery of construction projects.

4.2.3 Socio-cultural factors

The study found that socio-cultural factors have an influence on timely delivery of site development projects in the Saudi Arabia construction industry with the traditional hierarchical decision making and resistance to change emerging as top themes as explored below.

Traditional hierarchical decision-making

The influence of traditional hierarchical decision making was identified by respondents in the in-depth interviews. For instance, in his response to the question the socio-cultural factors that hinder timely completion of site development projects in the Saudi Arabian construction industry, the first respondent said,

“Traditional hierarchical decision-making processes often discourage effective collaboration and innovation as decisions take too long,” (respondent 1).

A similar response was also obtained from the third respondents in his response to the above question saying,

“Traditional hierarchical structures affect decision-making processes and project coordination efforts adversely,” (respondent 3).

These findings concur with earlier findings in the study by Alkharmany (2017) who indicated that Saudi Arabia has a traditional hierarchical decision-making structure whereby critical decisions

are made by top leadership, which affects timely completion of projects as key decisions such as approvals of project changes take time to be approved.

Religious and cultural norms

Respondents in the interviews elucidated how religious beliefs and cultural values often hinder timely completion of construction projects in the Saudi Arabian construction industry. For instance, while responding to the question about the socio-cultural factors that hinder timely completion of site development projects in the Saudi Arabian construction industry, the third respondent noted,

“Saudi Arabia’s culture is based on Islam religious values that have an influence on the choice of project design, and work schedules,” (respondent 3).

In his response to the same question, the fourth respondent raised a gender issue noting that Saudi Arabia’s cultural orientation has not been supportive of female workers, especially in the male dominated construction industry. In his response, the respondent denoted,

“In Saudi Arabia, the Islamic culture still limits women participation in gainful employment and this denies the construction industry talent that could help in improving construction project outcomes,” (respondent 4).

These findings concur with earlier findings in the study by Alkharmany (2017) as well as Alotaibi (2015) who had indicated earlier that Saudi Arabia’s Islamic religious principles limiting the participation of women in gainful employment could deny its construction industry talented workers that could enhance construction project performance.

4.2.4 Technological challenges

The study found that Saudi Arabia is emphasizing on adoption of modern technologies but still lags behind in integrating critical technologies to its construction project management practices thereby hindering timely completion of site development project. Some of the challenges identified as explored as follows.

Lack of integration of advanced technologies

In his response to the question about the technological factors hindering timely completion of site development projects in the Saudi Arabian construction industry, the second respondent acknowledged the progress made but quickly noted the problem of lack of integration saying,

“While progress in adopting certain technologies could not be denied, such the Saudi Arabian construction industry still lacks widespread adoption and integration of these advanced technologies into its project management practices” (respondent 2).

These findings concur with earlier findings in the study by Gurgun & Koc (2022) indicting that lack of integration of advanced technologies into the prevailing project management practices causes challenges in project communication and collaboration in the Saudi construction industry.

Inadequate digital infrastructure

In his response to the question about the technological factors hindering timely completion of site development projects in the Saudi Arabian construction industry, the third respondent noted,

“Factors including inadequate digital infrastructure significantly hinder effective implementation of technology-driven construction project management solutions in the Saudi construction industry,” (respondent 3).

In his response to the above question, the fifth respondent echoed the above finding saying,

“The adoption of these technologies may be hindered by factors including infrastructure limitations....,” (respondent 4).

These findings conform to earlier findings in the study by Ametepey et al. (2015) that limited technological infrastructure hinders efforts to fully adopt and leverage advanced technologies for improved project outcomes on the Saudi construction industry.

Resistance to adoption of new technologies

Responses in the in-depth interviews identified resistance to adoption of new technologies as one of the technological factors hindering timely completion of site development projects. For instance, while responding to the question about the technological factors hindering timely

completion of site development projects in the Saudi Arabian construction industry, the first respondent said,

“Moreover, resistance to change due to preference of familiar project management practices could hinder the adoption of new technologies for effective project management,” (respondent 1).

This response was echoed by the third respondent while responding to the same question; saying,

“Factors including inadequate digital infrastructure and resistance to change significantly hinder effective implementation of technology-driven construction project management solutions in the Saudi construction industry,” (respondent 3).

These findings concur with earlier findings in the study by Srđić & Šelih (2015) that workers in the Saudi construction industry tend to resist adoption of advanced technologies and prefer to use their traditional project management practices, and this hinders effective communication and collaboration which are critical for timely project completion.

4.2.5 Environmental factors

The study established that numerous unfavorable environmental factors hinder timely project completion in the Saudi construction include. Some of these factors are explored as follows.

Harsh climatic conditions

Respondents in the in-depth interviews identified harsh climatic conditions as a major challenge to timely completion of site development projects. For instance, when responding to the question about the environmental factors posing challenges to timely completion of site development projects in Saudi Arabia’s construction industry, the first respondent exclaimed,

“Saudi Arabia’s harsh climatic conditions, characterized with high temperatures and strong sandstorms, do adversely affect worker productivity and construction project schedules,” (respondent 1).

In his response the second respondent reiterated the above position, saying,

“The region's arid climate and, strong winds, and high temperatures pose challenges in water management and dust control and general wellbeing of workers, which hinders their productivity at work,” (respondent 3).

These findings are consistent with earlier findings in the study by Alsulamy (2022), which indicated that unfavorable climatic conditions characterized by high temperatures and storms that create an unconducive environment for many activities in project execution process.

Stringent environmental regulations

Respondents in the interviews identified stringent environmental regulations enforced by the Saudi authorities as part of the major challenges to timely completion of construction projects. For instance, when responding to the question about the environmental factors posing challenges to timely completion of site development projects in Saudi Arabia's construction industry, the third response intimated,

“Moreover, the stringent environmental regulations that demand for compliance with rigorous environmental impact assessments often lead to prolonged construction project timelines,” (respondent 3).

This concurs with findings in the study by Alsulamy (2022) which intimated that Saudi Arabia's stringent environmental rules and regulations such as guidelines on land ownership take time to comply, which could affect project delivery times adversely.

Emphasis on sustainability initiatives

Respondents in the in-depth interviews identified Saudi Arabia's emphasis on initiatives such as green construction practices to ensure sustainability in the construction industry. For instance, when responding to the question about the environmental factors posing challenges to timely completion of site development projects in Saudi Arabia's construction industry, the second respondent said,

Saudi Arabia is currently focusing on adoption of sustainability practices in its management of construction projects, and some of these activities often derail project completion efforts,” (respondent 2).

The sentiments shared in this response mirror those in the study by Kineber & Hamed (2022) who intimated that construction companies lose time when seeking to comply to these sustainability practices hindering their efforts toward timely completion of projects.

4.2.6 Legal challenges

Respondents in the interviews identified conflicts and legal battles as some of the major factors contributing to delays in the delivery of construction projects. some of these challenges are discussed below.

Conflicts and disputes between project stakeholders

While responding to the question about the legal and regulatory factors posing challenges to timely completion of site development projects in Saudi Arabia's construction industry, the first respondent denoted,

"Conflicts and disputes between contractors and consultants, contractors and project owners, or even project owners and land owners often delay the completion of construction project, sometimes they lead to total project failure if parties fail to agree," (respondent 1).

In his response to the same question, the fourth respondent concurred,

"Legal issues present the greatest hurdles that cause delays and cost overruns for construction projects in this country," (respondent 4).

These findings concur with the findings in the study by Alsuliman (2019) identifying legal battles as one of the major causes of delays in construction projects in Saudi Arabia.

Payment disputes and breach of contractual agreements

In his response to the question about the legal and regulatory factors posing challenges to timely completion of site development projects in Saudi Arabia's construction industry, the second respondent reiterated,

"Payment issues often delay delivery of construction projects, sometimes there are breaches in agreements signed at the beginning of the project. When parties seek legal address, the process is long leading to delays in delivery of construction projects in this country," (respondent 2).

These findings reflect the sentiments shared by Alotaibi, Edum-Fotwe & Price (2019) indicating that payment disputes and breaches to contractual agreements often take long to resolve leading to delays in the completion and delivery of construction projects.

4.3 Strategies, best practices and critical success factors to address the identified challenges

The study also sought to identify the major strategies, best practices and critical success factors to address the challenges causing delays in the completion of site development in the Saudi construction industry. Respondents in the in-depth interviews were asked to identify some of these strategies and the findings are explored below and compared with findings of previous studies as espoused in the available literature.

4.3.1 Internal challenges

After identifying the challenge hindering timely completion of construction projects, respondents were asked to identify some of the measures to address them.

To address the challenge of variations in project design, scope or specifications, respondents identified structured change management as an effective strategy to minimize its impact on project delivery time. For instance, while responding to the question about the strategies, best practices and critical success factors could be employed to effectively address the challenges in hindering timely delivery of site development projects in Saudi Arabia, the first respondent said,

“Employing a structured change management policy with standardized procedures would help to address challenges presented by frequent changes in project scope, design and specifications,” (respondent 2).

In his response to the above question, the third respondent added,

“clear mechanisms for requesting, evaluating, approving, and implementing changes in project design,” (respondent 3).

These findings concur with earlier findings in the study by Alshehri (2019) indicating that putting in place clear change management comprising of standardized procedures and approval mechanisms could expedite the approval processes and enhance project completion and delivery time.

To address the challenges of failure to attract and retain qualified staff, respondents in the study proposed numerous strategies. For instance, when responding to the question about the strategies, best practices and critical success factors could be employed to effectively address the challenges in hindering timely delivery of site development projects in Saudi Arabia, the third respondent intimated,

“Offering competitive rates could attract highly qualified personnel who are seeking greener pastures abroad, it could also attract international professionals” (respondent 3).

In his response, the fifth respondents suggested,

“creating a favorable working environment where staff feel that they are appreciated and their career growth objectives are met could help to address that challenge,” (respondent 5).

The above strategies have also been identified in the study by McAnulty & Baroudi (2010) who intimated that adequate compensation and creating an enabling work environment which acknowledges the importance of staff growth and development as key strategies for attracting and retaining skilled staff in the construction industry.

To address the challenge of delays in payment for certified projects, respondents indicated that this was beyond the control of the project management teams, but suggested that negotiations with project owners and financiers could help in addressing the challenges. For instance, while responding to the question about the strategies, best practices and critical success factors could be employed to effectively address the challenges in hindering timely delivery of site development projects in Saudi Arabia, the first respondent intimated,

“The project management teams may not have a lot of say in this. However, engaging with the project owners and financiers in constructive negotiations could help to break the impasse and get things going, if things do not change, then any party is at liberty to seek legal redress” (respondent 1).

This response concurs with the recommendation given by Alinaitwe, et al. (2013) that parties need to engage and negotiate with each other, but if they fail to agree, the aggrieved party could consider litigation to obtain justice.

To address the challenge of poor communication due to language barrier, respondents in the interviews identified the critical role of staff training. For instance, while responding to the question about strategies to address the challenges identified, the third respondent said,

“Training new staff on the local language and the local culture could help them to integrate well with the local communities,” (respondent 3).

The fourth respondent alluded to the role of technology in facilitating communication, saying,

“Today, technology is making things easier, using translation software and visual communication using signs and images could help to address the problem of communication barriers,” (respondent 4).

These findings concur with earlier suggestions in the study by Alshehri (2019) which identified the critical role of staff training about the local culture and use of technology to bridge the communication gap.

4.3.2 Strategies to address regulatory or political challenges

Respondents in the in-depth interviews identified various strategies to address identified political and regulatory hurdles. For instance, while responding to the question to identify strategies to address the challenges identified, the first respondent identified the need to streamline regulatory processes, saying,

“To address political and regulatory hurdles identified effectively, there is need for concerted effort towards streamlining regulatory processes, enhancing coordination among key regulatory bodies, and implementing standardized procedures for approvals and permits,” (respondent 1).

In his response to the above question, the second respondent added,

“To address these hurdles effectively, it is important that stakeholders engage with the regulatory authorities proactively, and push for streamlined permit processes as well as regulatory reform to simplify the complex compliance and clearance processes to enhance efficiency in project management practices,” (respondent 2).

These findings are consistent with earlier findings in the study by Alfraidi et al. (2020) whereby key stakeholders in the project management spectrum need to streamline regulatory processes to

enhance coordination between the regulatory bodies and project management teams for efficiency in the process of obtaining approvals and permits. The study findings also concur with the proposition by Alshehri (2019) to undertake regulatory reforms to make the process simple and achievable.

4.3.3 Strategies to mitigate economic challenges

To address the challenge of over-reliance on oil revenues, respondents in the study proposed economic diversification to ensure economic stability. For instance, while responding to the question about the strategies to address the identified challenges, the first respondent intimated,

“To mitigate the impact of economic fluctuations, stakeholders need to diversify funding sources and explore alternative project financing mechanisms,” (respondent 1).

While responding to the same question, the third respondent reiterated,

“Moreover, stakeholders could consider diversifying and exploring alternative revenue streams to mitigate the effect of economic fluctuations on timely delivery of construction projects,” (respondent 30).

These findings are consistent with earlier findings in the study Alsulamy (2022) that calls for diversification of the funding sources to mitigate the impact of currency fluctuations resulting from changes in international oil prices.

The respondents in the interviews also identified robust risk management as one of the effective strategies to mitigate the impact of economic fluctuations on timely delivery of construction projects. For instance, while responding to the question about strategies and best practices to address identified challenges, the second respondent said,

“To address these challenges, project managers need to adopt proactive risk management strategies including diversifying funding sources, putting in place cost-saving measures, and contingency plans to mitigate the effect of economic fluctuations on delivery project timelines,” (respondent 2).

These findings concur with those in the study by Al-Tmeemy (2019) who called for implementation of robust risk mitigation strategies and contingency plans to mitigate the impact of economic fluctuations on key construction project outcomes.

4.3.4 Strategies to address socio-cultural challenges

Respondents in the study agreed that there was a challenge of cultural barriers hindering fully integration of practitioners from different cultural orientation to the local Arab cultural context. In his response to the question about identifying strategies to address the identified challenges, the first respondent intimated,

“This can be achieved through targeted training and education programs to increase cultural awareness,” (respondent 1).

In his response to the same question, the third respondent proposed a solution to address the problem of resistance to change, saying

“Project managers to consider incentivizing and encouraging adoption of practices to address the challenge of resistance to change, and create a supportive working environment that values diversity and encourages participation from all stakeholders,” (respondent 3).

These findings concur with the propositions made by Alotaibi et al. (2019) as well as Mohammed & Ishak (2024) calling for training to improve the cultural competence of staff and incentivization to address the problem of resistance to change hinders adoption of new project management practices to could improve project outcomes.

4.3.4 Addressing technological challenges

To address the challenge of low adoption of modern technologies that are effective in fostering collaboration, respondents identified adoption of modern technologies and training to ensure effective use. For instance, while responding to the question about strategies to address identified challenges, the first respondent noted,

“To address identified technological challenges, project managers need to promote the adoption of innovative technologies and provide training and support to staff and key stakeholders,” (respondent 1).

In his response to the above question, the third respondent suggested,

“Project managers need to conduct trainings and put in place incentives to mitigate inherent resistance to adoption of new technologies,” (respondent 3).

These findings concur with early findings in the study by Gurgun & Koc (2022) calling for adoption of new technologies and conducting training to enhance project outcomes. The study findings further agree with the propositions made in the study by Alotaibi (2015) advocating for training and putting in place mechanisms such as incentives to address the challenge of resistance to change that could hinder adoption and use of modern technologies in the Saudi construction industry.

4.3.5 Addressing environmental challenges

Respondents in the study identified measures such as adoption of environmental sustainability practices in construction, use of innovative construction project methods and technologies and use of energy-efficient materials and technologies in construction to address environmental challenges. For instance, while responding to the question about strategies to address environmental challenges identified, the second respondent said,

“To mitigate environmental challenges, project managers need to prioritize environmental sustainability and incorporate strategies such as energy efficiency, project planning and execution stages. In addition, there is need to leverage innovative construction techniques and materials, which are resilient to environmental susceptibility to enhance resilience and sustainability of construction projects,” (respondent 2).

This compressive response concurs with earlier findings in the study by Gündüz & AbuHassan (2016) proposing adoption of sustainability and environmentally-friendly practices in the planning and design processes to enhance key project outcomes including timely project completion. The findings calling for energy-efficient building materials and construction methods is inspired by early findings in the study by Yap et al. (2021) calling for adoption of measures to optimize energy and material use in construction processes.

4.3.6 Strategies to address legal issues

Respondents in the study identified some of the strategies to mitigate the legal and regulatory hurdles that cause delays in the delivery of construction projects. for instance, while responding to the question on identifying strategies for addressing identified challenges, the first respondent exclaimed,

“Having in place clearly drawn contract documents stating the responsibilities and obligations for each party helps to mitigate the risk of legal battles at any stage of the project management process,” (respondent1).

This is consistent with provisions in the study by Alfraidi et al. (2020) that calls for thorough assessments to identify potential legal risks early and mitigating and also putting in place robust risk mitigation measures to mitigate risks that could derail completion and delivery of construction projects as scheduled.

While responding to the same question, the third respondent introduced the strategy of dispute resolution mechanisms, saying,

“There is need to put in place a dispute resolution mechanism that could help in resolving conflicts between various stakeholders in the construction process,” (respondent 3).

This is in tandem with earlier findings in the study by Almutairi et al. (2015) which advocates for setting up a conflict resolution mechanism for settling conflicts arising from various stakeholders in the construction industry, minimizing the impact of litigation that wastes time and financial resources for parties, and eventually impacting project delivery time positively.

In his response, the fifth respondent introduced the point of undertaking due diligence, saying,

“Before undertaking or signing any contractual documents, it is important conduct due diligence to identify any risks that could lead to conflicts or legal battles at the later stages of project development,” (respondent 5).

These findings concur with early findings in the study by Alotaibi (2015) calling for due diligence before project execution to identify any potential risks for legal action and addressing it early before the issues arise.

CHAPTER 5: CONCLUSIONS AND RECOMMENDATIONS

The conclusion chapter presents the culmination of the study synthesis the above study findings to develop critical conclusions and key insights for the study. Furthermore, the chapter presents actionable insights and recommendations comprising of strategies, critical success factors and best practices to address the identified challenges and contribute towards timely completion of site development projects.

5.1 CONCLUSIONS

After rigorous review of the available literature and examination of responses obtained from in-depth interviews with practitioners in the Saudi construction industry, the study concludes that site development projects in the Saudi construction industry face numerous internal and external challenges that affect their delivery schedules negatively. The conclusions of the study on the major challenges hindering timely completion of site development projects are presented as follows:

5.1.1 Internal challenges

The study has established that companies executing site development projects in the construction industry of Saudi Arabia face numerous internal challenges derailing delivery of site development projects as schedule. The study established that construction projects experience changes or variations in project design, scope and specifications, and agrees with Alshehri (2019) that these changes require additional approvals, adjustment of the prevailing project plans and quite often resource allocations that take time to achieve, thereby hindering timely completion of site development projects.

The study established that the Saudi construction industry faces the challenge of inadequate skilled labour, agreeing with the observation by McAnulty and Baroudi (2010) that the industry does not attract highly qualified staff, offers low wages and other compensation packages as compared to the rest of the world, which when combined with harsh environmental conditions including scorching sun and high temperatures make it difficult to retain its experienced worker. In addition, the study established that construction projects in Saudi Arabia experience delays in payment of certified works, and agrees with Rao et al. (2016) that this leads to cashflow challenges that eventually hinder timely completion of site development projects.

In addition, the study established that poor communication caused by language barrier between the locals and international workers and expatriates hinder project delivery as scheduled as explored in Alshehri (2019). Other challenges include poor project management skills and shortcomings that hinder the effectiveness of the decisions made leading to delays in the delivery of site development projects in the Saudi Arabia construction industry.

5.1.2 External challenges

Based on findings from extensive literature review and in-depth interviews, the study established that site development project in the Saudi construction industry face political, economic, sociocultural, technological, environmental and legal challenges that hinder timely completion of projects.

5.1.2.1 Political factors

The study concurs with Alsuliman (2019) and Fathalizadeh et al. (2021) in concluding that bureaucratic red tape characterized with multiple regulatory bodies and bureaucratic processes that present challenges in obtaining necessary permits, approvals and clearances hinder timely completion of site development projects in the Saudi construction industry. Furthermore, the study established that frequent changes in government policy particularly on land ownership regulations, foreign investment and funding as indicated in Khahro et al. (2023) could significantly create uncertainties and delays that hinder timely completion of site development projects.

5.1.2.2 Economic factors

From extensive literature review and responses from the interviews undertaken, the study has established that economic factors have a significant influence on completion of construction projects the Saudi Arabia construction industry. The study has observed that Saudi Arabia's economy is heavily dependent on oil revenues, which makes it vulnerable to fluctuations in global oil prices. Therefore, the study agrees with Alsulamy (2022) that fluctuations in oil prices often influence government spending as well as investment patterns, which has a direct impact on the overall demand and spending for construction projects. this research notes that during economic downturns, governments change the priorities to address immediate challenges, and this leads to funding constraints, delayed payments, and increased material costs significantly hindering timely completion of site development projects. The study further concludes that over-reliance on oil revenues as indicated in Alshuwaikhat & Mohammed (2017) expose construction projects to currency fluctuations leading to rise of costs for imported materials and equipment, which also hinder timely completion of site development projects.

5.1.2.3 Sociocultural challenges

Based on the findings from the rigorous literature review and interviews to practitioners in Saudi Arabia's construction industry, the study concludes that some socio-cultural factors pose

challenges timely completion of construction projects in the Saudi Arabian construction industry. The study observed that Saudi Arabia has a traditional hierarchical decision-making mechanism, which have a negative impact on project management, as decisions often need to be approved by high-ranking officials and stakeholders, and agrees with Alkharmany (2017) that this causes delays especially during project variations posing significant challenges to timely completion of site development projects.

Furthermore, the study observes that the country's religious and cultural norms pose significant challenges to timely completion of site development projects. The study has also established that Saudi Arabia's culture is deeply rooted in Islamic traditions, particularly adherence to Islamic principles, which often affects design choices and even construction schedules as indicated in Alkharmany (2017). The study understands that Saudi Arabia is still bogged down by cultural practices limiting participation of female workers into the male-dominated field such as the construction industry. This study agrees with Alotaibi (2015) that this religious practice denies the industry devoted and talented workers who could have significantly contributed to favourable outcomes such as timely for site development projects.

5.1.2.4 Technological Challenges

The study has established that technological factors have a significant impact on delivery of construction projects in the Saudi Arabia construction. The study noted that there has been significant progress in adoption of traditional technological solutions such as Building Information Modeling (BIM) and construction management software. However, the study has established that the Saudi Arabian construction industry still faces challenges particularly on widespread adoption and integration of advanced technologies to the prevailing construction project management practices. The study agrees with Gurgun & Koc (2022) that this hinders effective communication, collaboration as well as decision-making processes leading to delays that hinder timely completion of site development projects in the Saudi construction industry.

Furthermore, the study has established that the Saudi construction industry further experiences technological challenges including inadequate digital infrastructure, limited access to skilled and experienced technological professionals, and agrees with Ametepey et al. (2015) that this limits the benefits that could be derived from fully-fledged adoption and use of technology leading to delays in construction project completion and delivery schedules. Furthermore, this study

established that there is a great deal of resistance to change, particularly on adoption and implementation of technology-driven project management solutions, and agrees with Srđić & Šelih (2015) that this hinders effective project planning, communication, coordination, project reporting, all which have a negative impact on timely completion of site development projects in the Saudi construction industry.

5.1.2.5 Environmental Challenges

Based on findings from literature review and interviews to practitioners in the Saudi construction industry, the study has established that environmental factors have an impact on performance of construction projects. In its conclusions, this study concurs with Alsulamy (2022) that the region's harsh climatic conditions, characterized by extreme temperatures and strong sandstorms adversely affect worker health, safety and productivity, thus hindering timely completion of site development projects in the Saudi construction industry. Furthermore, the study has established that Saudi Arabia's stringent environmental regulations seeking to mitigate potential risks, often lead to prolonged project timelines hindering timely completion of site development projects in the Saudi construction industry. Furthermore, this study has established that Saudi Arabia has been increasingly focusing on environmental regulations and sustainability initiatives, and agrees with Kineber & Hamed (2022) that while construction projects seek to comply with these regulations, they often experience to delays, thus hindering timely completion and delivery of site development projects in the Saudi construction industry.

5.1.2.6 Legal challenges

The study has established that numerous legal challenges could hinder timely completion of construction projects in the Saudi construction industry. Findings from literature review and interviews on key practitioners in the Saudi construction industry indicate that disputes between project stakeholders including project owners, contractors, subcontractors, and consultants, often degenerate into legal proceedings that delay construction processes eventually leading to delays in project completion and delivery. The study agrees with the findings in the study by Alotaibi et al. (2019) that changes in project scope, payment disputes, or breach of contractual agreements often arise and may take long to achieve amicable resolution hindering timely completion of construction projects.

Furthermore, this study established that the construction industry is highly regulated requiring compliance with labor laws and regulations, governmental regulations policies and requirements, environmental regulations. In its conclusion, the study concurs with findings by Almutairi et al. (2015) that failure to comply with any of these laws, regulations, policies, rules or guidelines could attract legal challenges including legal suits, heavy fines, which ultimately hinder timely completion and delivery of site construction projects in the Saudi construction industry.

5.2 Recommendations of the study: Strategies and best practices to mitigate identified challenges

This section presents the study's recommendations, including Strategies, best practices, and critical success factors to address the identified challenges and improve the project completion time.

5.2.1 Strategies for mitigating internal challenges

To manage or mitigate delays due to changes or variations in Project Scope, Design, and Specifications, project managers need to adopt a structured change management process whereby they identifying potential changes early, assess their impact on project timelines and seek the appropriate approvals early to avoid rushed process. stakeholders need to put in place clear mechanisms for requesting, evaluating, approving, and implementing changes in project design, specifications or scope as intimated by Alshehri (2019).

To address challenges in attracting and retaining qualified staff and professionals, construction companies in the Saudi construction industry need to create a supportive, positive work environment offer competitive compensation and benefits packages comprising of adequate pay and non-monetary incentives such as opportunities for professional development and advancement to attract and retain qualified professions in the Saudi construction industry as intimated by McAnulty and Baroudi (2010).

To mitigate the challenge of delays in payments for certified works the companies need to engage with project owners and financier to establish clear payment terms and conditions in their initial contractual agreements. Additional measures including provisions for prompt payment and penalties for late payment of projects could be used to incentivize clients to honor the payments in timely manner as intimated by Alinaitwe, et al. (2013). In cases where late payments of persist, other considerations including litigation could be employed to ensure completed projects are paid to avoid losses.

To address the challenge of poor communication owing to language barriers, strategies including multilingual use of visual aids could be deployed to complement verbal communication. In addition, language training and cultural sensitivity programs could also be provided to the project teams to improve communication effectiveness and collaboration. As Alshehri (2019) noted, new technologies such as translation software as well as interpretation services, could also be deployed to bridge the communication gap created by language barrier.

5.2.2 Strategies for mitigating political / regulatory challenges

To address the identified regulatory challenges, effort should be directed towards streamlining regulatory processes, enhancing coordination among the key regulatory bodies, and ensuring that are transparent and standardized procedures for obtaining key approvals as recommended in the study by Alfraidi et al. (2020), clearances and permits. Furthermore, this study agrees with Alshehri (2019) that there is need for stakeholder engagements with policymakers to come up with regulatory reforms the are geared towards simplifying land ownership regulations and relaxing some of the stringent foreign investment restrictions to ensure a conducive environment for speedy execution and completion of site development projects.

5.2.3 Strategies to address economic challenges

To address the challenge of over-reliance on oil revenues, the study agrees with findings in the study by Alsulamy (2022) calling for diversification of the country's revenue and funding sources to avoid over-reliance on oil revenues that are subject to currency fluctuations that harbor uncertainty in the project management processes. In addition, the study recommends adoption of robust risk management strategies and contingency plans as suggested by Al-Tmeemy (2019) to mitigate the impact of economic uncertainties on delivery times for site development project projects in Saudi Arabia.

5.2.4 Strategies to mitigate the socio-cultural challenges

To address the cultural challenges, project managers need to conduct trainings to promote cultural sensitivity and awareness, and actively engage with stakeholders to understand their cultural perspectives and concerns and how they could affect key project outcomes in the Saudi construction industry. The study concurs with Mohammed & Ishak (2020) that project managers need to build strong working relationships based on trust and mutual respect to help in bridging the cultural gaps and foster a collaborative and conducive project construction project

environment. The project managers need to incentivize adoption of new practices and technologies address the challenge of resistance to change, and create a supportive working environment, which values diversity and encourages participation from all stakeholders as proposed in Alotaibi et al. (2019) to address the cultural barriers and enhance timely completion of site development project in the Saudi construction industry.

5.2.5 Strategies to address technological challenges

To address the identified technological challenges, this study concurs with the proposition by Gurgun & Koc (2022) that managers for site development projects need to focus on promoting adoption of innovative new technologies such as Artificial Intelligence, blockchain and Machine Learning and provide adequate training and support to staff and key stakeholders to fully utilize these technologies for enhanced project visibility and informed decision-making. Construction companies need to conduct trainings and put in place incentives to mitigate the prevailing resistance to adoption and use of new technologies in the day-to-day running of activities in site development projects in Saudi Arabia's construction industry. Furthermore, this study concurs with Alotaibi (2015) that construction companies need to collaborate with government and invest in digital infrastructure and promote incentives for technology adoption to improve key outcomes for site development projects including timely completion.

5.2.6 Strategies to mitigate environmental challenges

To address the identified environmental challenges, this study agrees with Gündüz & AbuHassan (2016) that managers need to prioritize sustainability practices and incorporate environmentally-friendly practices into the project planning and design phases of site development projects. The managers for site development projects need to adopt innovative construction techniques and utilize renewable energy sources in line with Saudi Arabia's green construction initiatives. In addition, construction companies need to invest in innovative technologies such as minimalist designs that facilitate conservation of resources and minimizing the impact of site construction activities on the environment.

Construction companies need to implement strategies to reduce resource consumption including use of recycled or reclaimed materials, adopt measures to optimize material use, and minimize generation of construction waste in site development activities as intimated in the study by Yap et al. (2021). To minimize energy consumption and greenhouse gas emissions, site managers need to

use energy-efficient building materials such as passive solar designs, natural lighting and prioritize water conservation measures. The site managers need to actively engage in conservation of biodiversity by protecting and preserving existing vegetation, wildlife habitats as well as ecological corridors during site development activities.

5.2.7 Strategies to mitigate legal challenges

To mitigate legal challenges, this study agrees with the recommendations presented in the study Almutairi et al. (2015) that construction companies need to develop clear and detailed contractual agreements, which clearly define the rights, responsibilities as well as obligations of all parties involved in site development projects. these agreements need to clearly stipulate key issues such as scope of work, project timelines, payment terms, dispute resolution mechanisms, and limitations to liability among others to mitigate potential legal hurdles. Furthermore, the study agrees with Alotaibi (2015) that before embarking on the execution of site development projects, construction companies need to conduct due diligence and assessment to identify and address any potential legal risks and regulatory requirements that are necessary for the project. The project managers need to ensure compliance with all relevant laws, regulations, and acquire the necessary permits, and approvals and establish mechanisms for monitoring and maintaining compliance throughout the duration of the project to avoid potential non-compliance challenges.

The study concurs with the findings in the study by Alfraidi et al. (2020) that construction companies need to put in place, robust risk management practices to help in identifying, assessing, and mitigating potential legal risks that could hinder timely completion of site development projects. The project managers should maintain clear and open communication channels involving all key stakeholders and documentation of all project-related communications, decisions, agreements, and changes to maintain a clear record of site development activities. Finally, construction managers need to establish formal dispute resolution mechanisms, including mediation, arbitration, or alternative dispute resolution mechanisms to resolve arising conflicts and disputes to allow for timely completion of site development projects in the Saudi construction industry.

5.3 Areas for future research

With the Saudi's Arabia's focus on digital transformation and the adoption of innovative technologies in construction project management across various sectors, there is a need for future

research to explore how digitalization trends could impacting legal risk management in Saudi Arabia's construction industry. Future research needs to investigate how the use of emerging technologies such BIM, Internet of Things (IoT), and artificial intelligence (AI) in construction project management could impact legal risks associated with construction projects.

In addition, future research could explore the legal implications of data privacy, cybersecurity, and intellectual property rights in the context of these emerging technologies, to provide valuable insights into the potential challenges and opportunities that could be experienced in the future legal risk management in the Saudi Arabian construction industry.

REFERENCES

- Abduljawwad, T.M., Almaktoom, A. & Abduljawwad, T.M. (2021). Preparation, S. Factors behind construction delays in Saudi Arabia. *PalArch's Journal of Archaeology of Egypt / Egyptology*, Vol. 18, 184–194
- Ahmad, S., Aftab, F., Eltayeb, T.K. & Siddiqui, K. (2023). Identifying critical success factors for construction projects in Saudi Arabia. *Web of Conferences* 371(8). DOI:10.1051/e3sconf/202337102047
- Alajmi A.M. & Memon Z.A. (2022). A Review on Significant Factors Causing Delays in Saudi Arabia Construction Projects. *Smart Cities*. 2022; 5(4):1465-1487. <https://doi.org/10.3390/smartcities5040075>
- Alfraidi, Y., Alzahrani, Y.M., Binsarra, F., Abdelhafez, M.H.H. Noaime, M.E. & Mohamed, M.M.S. (2020). Impact of political risk on construction cost in PPP project in KSA. *International Journal of Advanced and Applied Sciences*, 7(5), pp. 6-11.
- Alhammadi, S.A. (2022). Factors affecting the management of Riyadh's construction sector in the light of COVID-19. *Heliyon*, Volume 8, Issue 11.
- Alinaitwe, H., Apolot, R., & Tindiwensi, D. (2013). Investigation into the causes of delays and cost overruns in Uganda's public sector construction projects. *Journal of Construction in Developing Countries*, 18(2), 33.
- Al-Kharashi, A. & Skitmore, M. (2009). Causes of delays in Saudi Arabian public sector construction projects. *Journal of Construction Management Economics* 27 (1), pp. 3–23.
- Alkharmany, A. (2017). Project Management: The Effect of Saudi National Culture on The Attitudes of Key Stakeholders Towards Delay in Construction Projects in Saudi Arabia. A thesis submitted in partial fulfilment of the requirement of the University of Brighton for the degree of Doctor of Philosophy.
- Almannaee, R. (2014). Migrant Workers in the Construction Industry in United Arab Emirates (UAE): The role of the Ministries of Labour and Foreign Affairs in enforcing fair payments and minimum wages, Doctoral dissertation, thesis.
- Almathami, K. Y. (2020). Organisational culture and productivity of the construction industry in the Kingdom of Saudi Arabia. Doctoral dissertation, Queensland University of Technology.

- Almutairi, S., Kashiwagi, J., Kashiwagi, D. & Sullivan, K. (2015). Factors Causing Construction Litigation in Saudi Arabia. *Journal for the Advancement of Performance Information and Value* 7(1):58. DOI:10.37265/japiv. v7i1.54
- Alotaibi, A., Edum-Fotwe, F. & Price, A.D.F. (2019). Critical Barriers to Social Responsibility Implementation within Mega-Construction Projects: The Case of the Kingdom of Saudi Arabia. *Sustainability*, 11, 1755. <https://doi.org/10.3390/su11061755>
- Alotaibi, N. (2015). Managing Critical Factors Causing Delays in Public Construction Projects in Kingdom of Saudi Arabia. Conference: The 6th International Conference on Engineering, Project, and Production Management.
- Alshakhrit, A.K.S., Alshakhrit, A.K.S., Supeni, E.E. & Zahari, N.I. (2019). Causes and Effects of Delays in Saudi Arabian Construction Projects. *Journal of Global Economic Management Business Research*, 11, 165–174
- Alshehri, A. (2019). Addressing the Challenges in Construction Project Management: The Case of Saudi Arabia. *Journal of Engineering and Applied Sciences*, Vol. 6, Issue (1).
- Alshuwaikhat, H. M., & Mohammed, I. (2017). Sustainability matters in national development visions—Evidence from Saudi Arabia’s Vision for 2030. *Sustainability*, 9(3), 408.
- Alsulamy, S. (2022). Investigating critical failure drivers of construction project at planning stage in Saudi Arabia. *Frontiers in Engineering and Built Environment* Vol. 2 No. 3, pp. 154-166.
- Alsuliman, J.A. (2019). Causes of delay in Saudi public construction projects. *Alexandria Engineering Journal*, Volume 58, Issue 2, pp. 801-808.
- Altahtoo, U. & Alaskar, T. (2018). Understanding Relationship between Milestone and Decision-Making in Project Management: A Qualitative Study among Project Managers in Saudi Arabia. *International Journal of Business and Management* 13(8):184. DOI:10.5539/ijbm. v13n8p184
- Ametepey, S.O., Aigbavboa, C. & Ansah, S.M. (2015). Barriers to Successful Implementation of Sustainable Construction in the Ghanaian Construction Industry. *Procedia Manufacturing* 3:1682-1689. DOI: 10.1016/j.promfg.2015.07.988
- Creswell, J. W. (2013). *Qualitative inquiry & research design* (3rd ed.). Thousand Oaks, CA: Sage Publications.

- Creswell, J. W., & Creswell, J. D. (2017). *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*. Sage Publications.
- Creswell, J. W., & Plano Clark, V. L. (2011). *Designing and conducting mixed methods research* (2nd ed.), Thousand Oaks, CA: Sage.
- Dawadi D. (2020). Thematic Analysis Approach: A Step by Step Guide for ELT Research Practitioners. *Journal of Nepal English Language Teacher's Association*, Vol 25 No.1-2.
- Fathalizadeh, A., Hosseini, M.A., Vaezzadeh, S.S. & Edwards, D.J. (2021). Barriers to sustainable construction project management: the case of Iran. *Smart and Sustainable Built Environment* ahead-of-print(ahead-of-print). DOI:10.1108/SASBE-09-2020-0132
- Gündüz, M., & AbuHassan, M. H. (2016). Causes of construction delays in Qatar construction projects. *International Journal of Civil, Environmental, Structural, Construction, and Architectural Engineering*, 10(4), 516-521.
- Gurgun, A.P. & Koc, K. (2022). Exploring the adoption of technology against delays in construction projects. *Engineering Construction & Architectural Management* 31(1). DOI:10.1108/ECAM-06-2022-0566.
- Khahro, S.H., Shaikh, H.H., Zainun, N.Y., Sultan, B. & Khahro, Q.H. (2023). Delay in Decision-Making Affecting Construction Projects: A Sustainable Decision-Making Model for Mega Projects. *Sustainability*, 15, 5872. <https://doi.org/10.3390/su15075872>
- Kineber A.F. & Hamed M.M. (2022). Exploring the Sustainable Delivery of Building Projects in Developing Countries: A PLS-SEM Approach. *Sustainability*, 14(22):15460.
- Lindhard, S., & Wandahl, S. (2014). Exploration of the reasons for delays in construction. *International Journal of Construction Management*, 14(1), 36-44.
- McAnulty, S., & Baroudi, B. (2010). *Construction challenges in remote Australian locations* (Doctoral dissertation, Association of Schools of Construction Management).
- Mohammed, K.A. & Ishak, B.S. (2024). Identification of project cultural factors affecting the performance of UAE construction projects. *Alexandria Engineering Journal*, Volume 86.
- Musonda, I. & Mwanaumo, E. *Building Smart, Resilient and Sustainable Infrastructure in Developing Countries*. Proceedings of the 8th International Conference on Development and Investment in Infrastructure. Johannesburg, South Africa, 6–7 October 2022.

- Newcomer, E.K., Hatry, P.H. & Wholey, S.J. (2015). Handbook of practical program evaluation. Chapter 19: Conducting Semi-Structured Interviews. 4th Ed., Jossey-Bass, A Wiley Imprint.
- Rao, B. P., Shekar, S. C., Jaiswal, N., Jain, A., & Saxena, A. D. (2016). Delay Analysis of Construction Projects. Journal of Information Technology and Economic Development, 7(1), 15-24.
- Rubin, H. J., & Rubin, I. S. (2012). Qualitative interviewing: The art of hearing data. Sage Publications.
- Shabanova, L.B., Ismagilova, G.N., Salimov, L.N. & Akhmadeev, M.G. (2015). PEST - Analysis and SWOT - Analysis as the Most Important Tools to Strengthen the Competitive Advantages of Commercial Enterprises. Mediterranean Journal of Social Sciences 6(3). DOI:10.5901/mjss. 2015.v6n3p705
- Srdić, A., & Šelih, J. (2015). Delays in construction projects: causes and mitigation. Organization, technology & management in construction: an international journal, 7(3),1383-1389.
- Yap, J. H. Goay, P. L., Woon, Y.W. & Skitmore, M. (2021). Revisiting critical delay factors for construction: Analysing projects in Malaysia. Alexandria Engineering Journal, Volume 60, Issue 1, pp. 1717-1729.

المستخلص

الهدف من هذه الدراسة هو تناول التحديات التي يواجهها قطاع الأنشاءات في المملكة العربية السعودية، حيث تشهد البلاد توسعاً حضرياً سريعاً ويلعب تطوير البنية التحتية دوراً حاسماً في هذا، بالإضافة إلى أجندة التنويع الاقتصادي الطموحة المبينة في رؤيتها 2030.

لفترة طويلة، تشهد مشاريع تطوير المواقع في المملكة العربية السعودية تأخيرات تدريجية في جداول التسليم، مما يعيق أجندة التنمية المستدامة في البلاد كما هو متصور في رؤية 2030. وقد تم إجراء العديد من الدراسات لتحديد العوامل التي تعيق الانتهاء من مشاريع تطوير المواقع في الوقت المناسب، ولكن أبرزها لا تزال الفجوة قائمة خاصة فيما يتعلق بالفحص الشامل لبيئة التشغيل الداخلية والخارجية لتحديد العوامل المثبطة وتأثيرها على النتائج والاستراتيجيات وأفضل الممارسات لمعالجتها وبالتالي تحسين وقت الانتهاء لمشاريع تطوير المواقع في صناعة البناء والتشييد السعودية. لذلك، تقدم هذه الدراسة فحصاً شاملاً للتحديات المتعددة الأوجه التي تعيق الانتهاء من مشاريع تطوير الموقع في الوقت المناسب وتوصي باستراتيجيات لمعالجتها. باستخدام منهج نوعي يتكون من مراجعة شاملة للأدبيات ومقابلات متعمقة مع مديري المشاريع ومهندسي الموقع والعاملين في صناعة البناء والتشييد السعودية، وجدت الدراسة أن هناك العديد من العوامل الداخلية مثل الاختلافات في تصميم المشروع والمواصفات ونطاق المشاريع وعدم كفاية العمالة الماهرة والتأخير في الدفع وتحديات الاتصال التي تعيق استكمال مشاريع تطوير الموقع في الوقت المناسب. مستوحاة من أداة التحليل PESTEL، تقوم الدراسة بمسح بيئة التشغيل الخارجية لتطوير الموقع وتحديد التحديات السياسية والاقتصادية والاجتماعية والثقافية والتكنولوجية والبيئية والقانونية التي تعيق الانتهاء في الوقت المناسب من مشاريع تطوير الموقع في صناعة البناء والتشييد السعودية.

وتهدف الدراسة إلى إجراء تحقيق شامل في التحديات المتعددة الأوجه التي تعيق استكمال مشاريع تطوير المواقع في المملكة العربية السعودية في الوقت المناسب، مع التركيز على فهم التفاعلات الديناميكية بين التكنولوجيا المتطورة، والأطر التنظيمية، والاعتبارات البيئية، والفروق الثقافية الدقيقة، من بين عوامل أخرى. ومن خلال دراسة هذه الترابطات المعقدة، ستوفر الدراسة رؤى قيمة حول الأسباب الحالية لتأخير المشروع، وتجاوز التكاليف، والمخاوف المتعلقة بالجودة. وهذا بدوره سيسهل تطوير الاستراتيجيات المستهدفة والتدخلات المبتكرة التي يمكن أن تعزز ممارسات إدارة المشاريع وتعزز البنية التحتية للتنمية المستدامة والتنمية الاقتصادية في المملكة العربية السعودية والشرق الأوسط بشكل عام.

كما توصي الدراسة باستراتيجيات محددة لمواجهة تحديات محددة تسلط الضوء على الحاجة إلى اعتماد التقنيات الناشئة، وتدريب وتطوير الموظفين، واعتماد ممارسات البناء المستدام وتبسيط العملية التنظيمية لجعلها أكثر بساطة وفي متناول أصحاب المصلحة.

تحديات انجاز مشاريع التطوير في المملكة العربية السعودية

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