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Identification and Evaluation of Delays in Construction Projects Case Study: Quay Construction Projects in Southern Iran

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Abstract

Delays in quay construction projects can have significant consequences for project duration, cost, quality, and overall project performance. Therefore, identifying and evaluating the factors contributing to delays plays an important role in improving project management and mitigating their adverse consequences. The present study was conducted with the aim of identifying and evaluating the factors affecting delays in quay construction projects in southern Iran. In terms of its objective, this study is developmental-applied, while methodologically it employs a combination of qualitative and quantitative approaches. In the qualitative phase, the factors and components affecting project delays were identified through library research and in-depth, semi-structured interviews with experts using thematic analysis, and the conceptual model of the study was developed. In the quantitative phase, the proposed model was evaluated and tested using questionnaire data collected from 217 managers and employees involved in quay construction projects in southern Iran through Confirmatory Factor Analysis (CFA) and Structural Equation Modeling (SEM). The findings of the qualitative phase indicated that the factors affecting delays in quay construction projects in southern Iran can be classified into six main factors: contextual factors, organizational strategies, organizational factors, marketing factors, structural factors, and environmental factors, comprising a total of 31 components. The results of the quantitative phase also showed that all six factors have a direct and significant effect on delays in quay construction projects. Furthermore, the results of the validity and model-fit indices indicated adequate sample size, appropriate construct validity, and an acceptable fit of the proposed conceptual model. Based on the findings, simultaneous consideration of organizational, structural, environmental, contextual, marketing, and organizational strategic factors can contribute to the timely identification of delay risks and improve time management in quay construction projects.

Keywords: Project delay, Project risk management, Quay construction projects, Factors affecting delay, Thematic analysis, Structural equation modeling.

1 | Introduction

Project management has become increasingly important in complex and uncertain business and investment environments, where organizations are required to achieve project objectives while simultaneously responding to technological, economic, organizational, and environmental changes. In such environments, risk

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management plays a fundamental role in identifying potential threats, assessing their consequences, and developing appropriate responses to protect project objectives and organizational value. Previous research has shown that effective enterprise and project risk management can contribute to better organizational performance and improved decision-making under uncertainty [1], [2]. In particular, Hoyt and Liebenberg [1] found a positive relationship between the implementation of enterprise risk management and firm value, emphasizing the importance of a systematic approach to identifying and managing risks.

Construction projects are particularly exposed to a wide range of risks because they involve multiple stakeholders, substantial financial resources, complex contractual arrangements, uncertain working conditions, and interdependent activities. Among the major challenges affecting construction projects, schedule delay is one of the most important problems because it can increase project costs, generate contractual disputes, reduce stakeholder satisfaction, and negatively affect overall project performance [3], [4]. Bajjou and Chafi [3] conducted an empirical study of schedule delays in Moroccan construction projects and demonstrated the importance of identifying and evaluating the factors responsible for schedule deviations. More broadly, Sanni-Anibire et al. [4] identified 36 common causes of construction delay worldwide, including financial difficulties, approval delays, material delivery problems, poor site organization and coordination, and inadequate planning.

Schedule management is therefore a critical component of successful project management. Effective schedule management requires continuous monitoring of project progress, timely identification of deviations, and appropriate corrective actions. Yu et al. [5] emphasized that construction schedules are dynamic and subject to uncertainty and proposed a dynamic schedule management approach based on fuzzy earned value management and a back-propagation neural network. Their findings highlight the importance of considering uncertainty and changing project conditions when managing construction schedules.

In addition to technical and financial factors, organizational and managerial characteristics can substantially influence project outcomes. Construction projects depend heavily on the coordination and decision-making capabilities of project managers and project teams. Yong and Mustaffa [6] examined critical success factors in Malaysian construction projects and highlighted the importance of human-related and organizational issues in achieving successful project outcomes. Similarly, Stingl and Geraldi [7] demonstrated that behavioural factors, including errors, political behaviour, and misunderstandings, can influence decision-making processes in projects. These findings suggest that project delays should not be examined solely from a technical perspective; rather, organizational, managerial, behavioural, and contextual dimensions should also be considered.

The increasing complexity and dynamism of project environments have also created a need for more flexible and adaptive management approaches. Nguyen et al. [8] showed that project management approaches can become more adaptive in response to complex and dynamic environments, while Marnewick and Marnewick [9] emphasized the capabilities required by project managers to implement projects in rapidly changing technological environments. These findings are particularly relevant to large-scale infrastructure projects, where managers must respond to changes in resources, technologies, regulations, markets, and stakeholder requirements.

Risk culture and organizational structures are also important dimensions of effective risk management in construction. Wong et al. [10] conceptualized risk culture as an important factor in enterprise risk management implementation in construction companies and emphasized dimensions such as risk policy and risk appetite, accountability, incentives, risk indicators, risk communication, and internal relationships. Their findings reinforce the view that effective risk management depends not only on formal procedures but also on the organizational environment in which risk-related decisions are made.

Information availability and information management represent another important dimension of project performance. Li et al. [11] demonstrated the importance of information systems for managing complex multi-project environments and improving information sharing and processing efficiency. In large construction

projects, timely access to reliable information can support coordination among project participants, facilitate decision-making, and help managers identify emerging deviations before they develop into major delays.

Furthermore, external conditions can significantly affect project risk and performance. Political, economic, institutional, financial, and market conditions may create uncertainties that are difficult for project organizations to control directly. Ullah et al. [2] demonstrated that firms' perceptions of risk and their risk management approaches vary according to ownership characteristics, investment motives, and the institutional quality of the host environment. Bülbül et al. [12] similarly showed that environmental and competitive characteristics can influence organizations' choices of risk management practices. These findings indicate that risk management should consider both internal organizational capabilities and external environmental conditions.

Large infrastructure projects such as port and quay construction projects are particularly sensitive to these issues because of their technical complexity, high capital requirements, dependence on specialized resources, and interaction with environmental, regulatory, economic, and political conditions. Delays in such projects may have consequences beyond the individual project and can affect the performance of related logistics, transportation, commercial, and regional development activities.

Despite the extensive international literature on construction delays, relatively limited research has specifically examined the factors affecting delays in quay construction projects in southern Iran. The existing literature provides valuable evidence concerning construction delay, risk management, organizational factors, project success, and environmental uncertainty; however, these factors have rarely been integrated into a comprehensive framework specifically designed for quay construction projects in the southern regions of Iran.

Therefore, the present study aims to identify and evaluate the factors affecting delays in quay construction projects in southern Iran. The study seeks to answer two main questions:

- *What are the major factors and components contributing to delays in quay construction projects in southern Iran?*
- *What is the status and significance of these factors in explaining project delays?*

To address these questions, the study combines qualitative and quantitative approaches. First, relevant factors are identified through a review of the literature and thematic analysis of expert interviews. Subsequently, the proposed conceptual model is evaluated using Confirmatory Factor Analysis (CFA) and Structural Equation Modeling (SEM).

2 | Literature Review

2.1 | Construction Project Delays

Construction delay is one of the most frequently reported problems in the construction industry and has been examined from different technical, managerial, financial, organizational, and environmental perspectives. Bajjou and Chafi [3] conducted an empirical study of schedule delays in Moroccan construction projects and demonstrated the importance of identifying and evaluating the factors responsible for schedule deviations. A broader perspective is provided by Sanni-Anibire et al. [4], who conducted a meta-analytical review of delay causes in the global construction industry. Their study identified 36 common delay causes and showed that financial difficulties, approval delays, material delivery problems, poor coordination, and inadequate planning are among the important causes of construction delays.

The management of construction schedules is therefore closely associated with the identification and control of project risks. Yu et al. [5] argued that construction schedules are dynamic and subject to uncertainty and therefore schedule management approaches should incorporate changing project conditions rather than relying exclusively on deterministic performance measures. This perspective supports the need for continuous monitoring and adaptive management mechanisms in projects exposed to significant uncertainty.

2.2 | Risk Management and Project Performance

Risk management is a central element of organizational and project management because it enables organizations to identify potential threats, evaluate their consequences, and implement appropriate responses. Hoyt and Liebenberg [1] provided empirical evidence that enterprise risk management can be positively associated with firm value, demonstrating the broader organizational benefits of systematic risk management.

Risk management practices, however, are influenced by the characteristics of the organizational and competitive environment. Bülbül et al. [12] examined factors influencing banks' choices of credit risk management practices and demonstrated that organizational and market conditions can affect risk-management decisions. Similarly, Ullah et al. [2] demonstrated that firms operating in international environments perceive and manage risks differently depending on ownership structure, investment motives, and institutional quality. This finding highlights the importance of contextual factors in understanding risk.

2.3 | Organizational and Human Factors

Project performance is strongly influenced by organizational capabilities, leadership, communication, and human behaviour. Yong and Mustaffa [6] examined critical success factors in Malaysian construction projects and emphasized the importance of human-related and organizational issues in construction project performance.

Behavioural decision-making is another important dimension of project management. Stingl and Geraldi [7], through a systematic review, examined behavioural decision-making in projects and highlighted cognitive errors, political behaviour, and social and organizational misunderstandings as relevant dimensions. These findings demonstrate that project decisions may be affected by factors beyond purely technical and economic considerations.

Risk culture can also shape how organizations identify and respond to project risks. Wong et al. [10] proposed a conceptual framework linking risk culture to enterprise risk management implementation in construction companies. Their framework includes risk policy and risk appetite, accountability, incentives, key risk indicators, risk language, and internal relationships. Such dimensions are relevant to construction organizations because the effectiveness of formal risk management systems depends partly on the extent to which risk awareness is embedded in organizational practices.

2.4 | Information, Planning, and Coordination

The availability and effective use of information are critical to project planning and coordination. In complex multi-project environments, information must be collected, processed, shared, and updated efficiently. Li et al. [11] developed a city-level multi-project management information system and emphasized the role of information systems in improving information sharing and processing efficiency.

This issue is particularly important in construction projects because delays in communication, approval, coordination, and information exchange may propagate across interconnected project activities. The findings of Sanni-Anibire et al. [4], which identify poor site organization and coordination among project participants as major causes of delay, further emphasize the importance of effective information and coordination mechanisms.

2.5 | Sustainability and External Project Conditions

Construction projects increasingly operate within broader economic, environmental, social, and institutional contexts. Sfakianaki [13], through a literature review of critical success factors for sustainable construction, highlighted the multidimensional nature of construction project success and the need to consider organizational and sustainability-related factors in project management.

Silvius [14] emphasized the role of the Project Management Office in integrating sustainability considerations into project management standards, methods, and practices. These perspectives suggest that project management should not focus exclusively on time and cost but should also account for broader organizational and environmental requirements.

External institutional and economic conditions can also influence organizational risk perceptions and management decisions. Rodríguez-Domínguez and Noguera-Gámez [15] examined corporate reporting on risks among Spanish companies, while Dobler et al. [16] investigated attributes of corporate risk disclosure across an international manufacturing context. These studies support the importance of risk communication and the organizational context in managing uncertainty.

2.6 | Research Gap

The review of previous studies indicates that construction delays are influenced by a combination of financial, technical, organizational, managerial, behavioural, informational, structural, and environmental factors. Existing studies have investigated these dimensions separately or within different geographical and industrial contexts. For example, Bajjou and Chafi [3] and Sanni-Anibire et al. [4] focused specifically on construction delays, while other studies examined risk management [1], [12], [17], organizational and behavioural factors [5], [6], [8], [10], [13], information management [11], and sustainability [7], [14].

However, the existing literature provides limited evidence regarding the simultaneous influence of these dimensions on delays in quay construction projects in southern Iran. This gap is particularly important because such projects operate under specific economic, environmental, political, organizational, and infrastructural conditions that may distinguish them from conventional building and construction projects [18–20].

Accordingly, the present study seeks to develop and empirically evaluate an integrated framework for identifying and assessing the factors affecting delays in quay construction projects in southern Iran. The study combines qualitative thematic analysis for identifying and contextualizing the relevant factors with quantitative analysis and SEM for evaluating the proposed relationships. This integrated approach is intended to provide both a theoretically grounded and context-sensitive framework for understanding and managing delays in quay construction projects.

3 | Research Methodology

The research methodology employed in this study is a mixed-methods approach, in which quantitative and qualitative methods are used simultaneously. In this study, an appropriate framework for examining and investigating the research problem was developed through a review of various theoretical foundations. Subsequently, qualitative data were used to develop and contextualize the indicators of the research conceptual model. Finally, the conceptual model was quantitatively tested using a deductive approach, which is essential for formulating the research hypotheses.

One of the advantages of quantitative research is that researchers have access to larger samples, enabling them to demonstrate statistical effects and generalize the findings to the entire population. Since no framework or model has been presented in Iran for identifying and evaluating delays in quay construction projects in southern Iran, after designing the research conceptual model based on the existing theoretical foundations, a qualitative and exploratory approach will be employed to contextualize and adjust the model indicators. This will allow the conceptual model to be finalized based on expert opinions.

In terms of its objective, the present study is qualitative exploratory, and its method of analysis is thematic analysis.

In this section of the study, a quantitative method will be employed to test the conceptual model. At this stage, the validity and goodness of fit of the conceptual model will be examined, providing an opportunity to

identify and discover additional relationships. This approach can potentially expand the scale and scope of the study and provide a basis for future research.

In terms of its objective, the present study is classified as developmental applied research, while in terms of its data collection method, it is descriptive survey research.

This research was conducted in the following two main phases:

Table 1. Research method in two phases.

Phase	Method
Identification of factors and components affecting delays in quay construction projects in southern Iran (model development)	Qualitative/Thematic Analysis
Evaluation of factors affecting delays in quay construction projects in southern Iran, assessment and testing of the research model, and development of the final model (quantitative approach)	Quantitative/SEM

The present study will involve different statistical populations for each of its qualitative and quantitative phases.

In the first phase of the study (the qualitative phase), in order to identify the factors and components affecting delays in quay construction projects in southern Iran based on the thematic analysis method, a group of experts in quay construction projects in southern Iran, as well as academic experts and prominent organizational consultants, will be considered as the statistical population.

In the second phase of the study, a larger population will be required to test and assess the fit of the model. Accordingly, the statistical population in this phase will consist of managers and employees of quay construction projects in southern Iran, totaling 500 individuals.

3.1|Sampling Method and Sample Size

Purposive convenience sampling will be employed as an appropriate method for selecting experts in quay construction projects in southern Iran, as well as academic experts and prominent organizational consultants in Iran, in order to collect data for the qualitative phase of the study.

The quantitative phase of the study will involve a statistical sample consisting of managers and employees of quay construction projects in southern Iran. Simple random sampling will be used to select the sample for examining the relationships among the identified factors and components.

3.2|Sample Size and Calculation Method

The present study will have different statistical samples for its qualitative and quantitative phases.

In the qualitative phase of this study, purposive sampling will be used. In other words, sampling will continue until theoretical saturation is reached. More specifically, sampling will continue until no new data, concepts, or insights are added to the categories that have been identified up to that point.

The statistical sample in this study will consist of managers and employees of quay construction projects in southern Iran. Given the limited size of the statistical population, the Cochran formula was used to determine the sample size for the quantitative phase. Based on this calculation, the required sample size was approximately 217 respondents.

It should be noted that the sampling method and sample size in this study were carried out in the following two main phases:

Table 2. Sampling method and sample size in two phases.

Phase	Sampling Method and Sample Size	Method
Identification of factors and components affecting delays in quay construction projects in southern Iran (model development)	Purposive convenience sampling was used, and sampling continued until theoretical saturation was reached, which typically occurs with approximately 10–15 participants.	Qualitative/Thematic Analysis
Evaluation of factors affecting delays in quay construction projects in southern Iran, assessment and testing of the research model, and development of the final model (quantitative approach)	Simple random sampling was used, with a sample size of 217 participants.	Quantitative/SEM

In the present study, the main research instruments for each phase are as follows.

Table 3. Data collection instruments by phase.

Phase	Data Collection Instrument
Literature review and review of previous studies	Databases and note-taking
Development of the initial research model based on content analysis (qualitative approach)	In-depth interviews
Assessment of the research model and development of the final model (quantitative approach)	Closed-ended questionnaire

For this purpose, as presented in *Table 4*, the keywords related to identifying the factors and components affecting delays in quay construction projects in southern Iran will first be determined.

Table 4. Keywords and databases searched for relevant articles.

Search Terms	Databases
Project risk management	ProQuest
Project risk management	Springer
Project delays	ScienceDirect
Project delays	Emerald
Project delays	EBSCO
Project delays	SAGE
Project delays	ERIC
Project delays	Google Scholar

Another source of input and information will be obtained through interviews with experts, including managers, consultants, and professionals active in the field of management, as well as academic experts, including faculty members and researchers working in the field of management and related areas.

The data collection instrument used in the quantitative phase of the study is a questionnaire. A questionnaire is one of the most common instruments for collecting data in survey research.

3.3|Validity and Reliability of the Data Collection Instruments

In the present study, the methods used to assess the validity and reliability of the data collection instruments are as follows.

Table 5. Methods for assessing the validity and reliability of data collection instruments.

Data Collection Instrument	Validity	Reliability
In-depth interview	Obtaining expert approval of the interview process and general questions from experienced professors, including supervisors and advisors	Sharing the codes extracted from the interviews with the interviewees and obtaining their confirmation
Closed-ended questionnaire	Face validity and CFA	Cronbach's alpha coefficient and composite reliability

4 | Data Analysis Method

The data analysis method in this study will be conducted in two qualitative and quantitative sections. In the qualitative section, thematic analysis and interview data collection will be used to identify the factors and components affecting delays in quay construction projects in southern Iran. In the quantitative section, CFA and SEM will be used to evaluate the factors affecting delays in quay construction projects in southern Iran.

It should be noted that this research will be conducted in the following two main phases:

Table 6. Research method in two phases.

Phase	Method
Identification of factors and components affecting delays in quay construction projects in southern Iran (model development)	Qualitative/Thematic Analysis
Evaluation of factors affecting delays in quay construction projects in southern Iran, assessment and testing of the research model, and development of the final model (quantitative approach)	Quantitative/SEM

5 | Research Findings

In the qualitative phase of the present study, thematic analysis was employed. In this approach, initial concepts and categories related to the research topic are identified through three stages: text analysis, text description, and text synthesis. Subsequently, through in-depth and semi-structured interviews, additional themes are extracted and presented in the form of categorized concepts and categories.

To identify the themes, the relevant texts are first examined and a thematic network is developed. In the thematic network, following a specific procedure, basic themes are collected and organized in the form of initial codes. The basic themes are then combined and summarized into organizing themes. Finally, global themes, which encompass the overarching principles governing the texts as a whole, are synthesized. The thematic network is presented graphically and, in a web, like format so as to avoid implying any particular hierarchy among the themes.

In the first step of constructing the thematic network, the data obtained from the library studies and interviews are reviewed, and the meanings and patterns of themes are explored. Following the interviews and literature review, the key points identified in the interviews are recorded, with each key point considered as an event. These events are then transferred to a higher level of abstraction, namely, a concept. Some concepts are derived from the combination of several events, while others may be derived from a single event or key point by increasing its level of abstraction.

After reviewing and becoming familiar with the data, an initial list of ideas present in the data and statements is prepared. These are referred to as basic themes. In this process, the central category is systematically linked to other categories, the relationships among them are presented within the framework of a coherent narrative, and categories requiring further refinement and development are modified.

5.1| Research Hypotheses

The present study includes six hypotheses:

Hypothesis 1. Causal factors have a significant effect on delays in quay construction projects in southern Iran.

H0: Causal factors have no significant effect on delays in quay construction projects in southern Iran.

H1: Causal factors have a significant effect on delays in quay construction projects in southern Iran.

The significance statistic for *Hypothesis 1* is 7.062, which is greater than 1.96. Therefore, H0 is rejected and H1, which examines the direct and significant effect of causal factors on delays in quay construction projects in southern Iran, is supported. The standardized coefficient for the relationship between causal factors and delays in quay construction projects in southern Iran is 0.165. Therefore, the research hypothesis is supported.

Hypothesis 2. Organizational strategies have a significant effect on delays in quay construction projects in southern Iran.

H0: Organizational strategies have no significant effect on delays in quay construction projects in southern Iran.

H1: Organizational strategies have a significant effect on delays in quay construction projects in southern Iran.

The significance statistic for *Hypothesis 2* is 10.154, which is greater than 1.96. Therefore, H0 is rejected and H1, which examines the direct and significant effect of organizational strategies on delays in quay construction projects in southern Iran, is supported. The standardized coefficient for the relationship between organizational strategies and delays in quay construction projects in southern Iran is 0.109. Therefore, the research hypothesis is supported.

Hypothesis 3. Organizational factors have a significant effect on delays in quay construction projects in southern Iran.

H0: Organizational factors have no significant effect on delays in quay construction projects in southern Iran.

H1: Organizational factors have a significant effect on delays in quay construction projects in southern Iran.

The significance statistic for *Hypothesis 3* is 9.066, which is greater than 1.96. Therefore, H0 is rejected and H1, which examines the direct and significant effect of organizational factors on delays in quay construction projects in southern Iran, is supported. The standardized coefficient for the relationship between organizational factors and delays in quay construction projects in southern Iran is 0.204. Therefore, the research hypothesis is supported.

Hypothesis 4. Marketing factors have a significant effect on delays in quay construction projects in southern Iran.

H0: Marketing factors have no significant effect on delays in quay construction projects in southern Iran.

H1: Marketing factors have a significant effect on delays in quay construction projects in southern Iran.

The significance statistic for *Hypothesis 4* is 5.212, which is greater than 1.96. Therefore, H0 is rejected and H1, which examines the direct and significant effect of marketing factors on delays in quay construction projects in southern Iran, is supported. The standardized coefficient for the relationship between marketing factors and delays in quay construction projects in southern Iran is 0.186. Therefore, the research hypothesis is supported.

Hypothesis 5. Structural factors have a significant effect on delays in quay construction projects in southern Iran.

H0: Structural factors have no significant effect on delays in quay construction projects in southern Iran.

H1: Structural factors have a significant effect on delays in quay construction projects in southern Iran.

The significance statistic for *Hypothesis 5* is 8.068, which is greater than 1.96. Therefore, H0 is rejected and H1, which examines the direct and significant effect of structural factors on delays in quay construction projects in southern Iran, is supported. The standardized coefficient for the relationship between structural factors and delays in quay construction projects in southern Iran is 0.169. Therefore, the research hypothesis is supported.

Hypothesis 6. Environmental factors have a significant effect on delays in quay construction projects in southern Iran.

H0: Environmental factors have no significant effect on delays in quay construction projects in southern Iran.

H1: Environmental factors have a significant effect on delays in quay construction projects in southern Iran.

The significance statistic for *Hypothesis 6* is 10.419, which is greater than 1.96. Therefore, H0 is rejected and H1, which examines the direct and significant effect of environmental factors on delays in quay construction projects in southern Iran, is supported. The standardized coefficient for the relationship between environmental factors and delays in quay construction projects in southern Iran is 0.191. Therefore, the research hypothesis is supported.

Note: In the Persian text, H1 of *Hypothesis 6* is written as "structural factors," whereas the hypothesis itself concerns environmental factors. In the English translation above, this appears to be corrected to "environmental factors" for consistency.

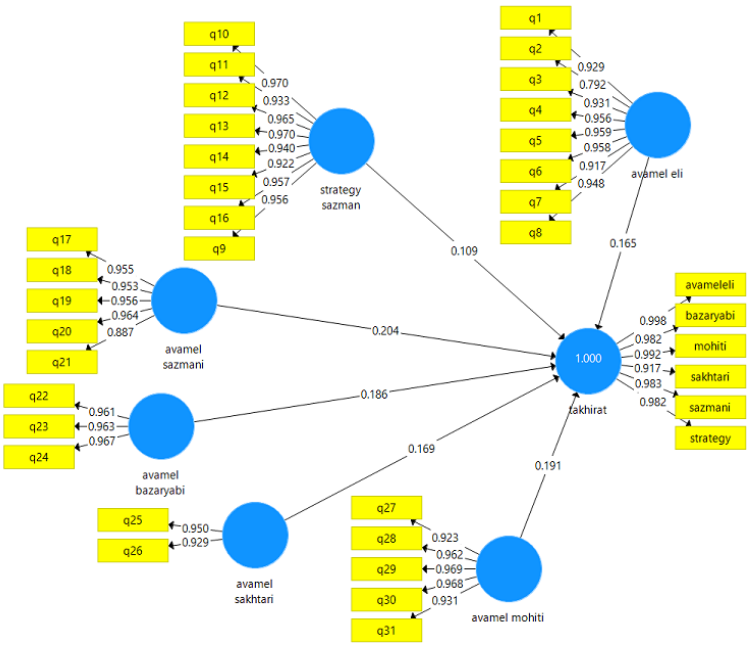

Fig. 1. Path analysis of the research conceptual model in the standardized estimate mode.

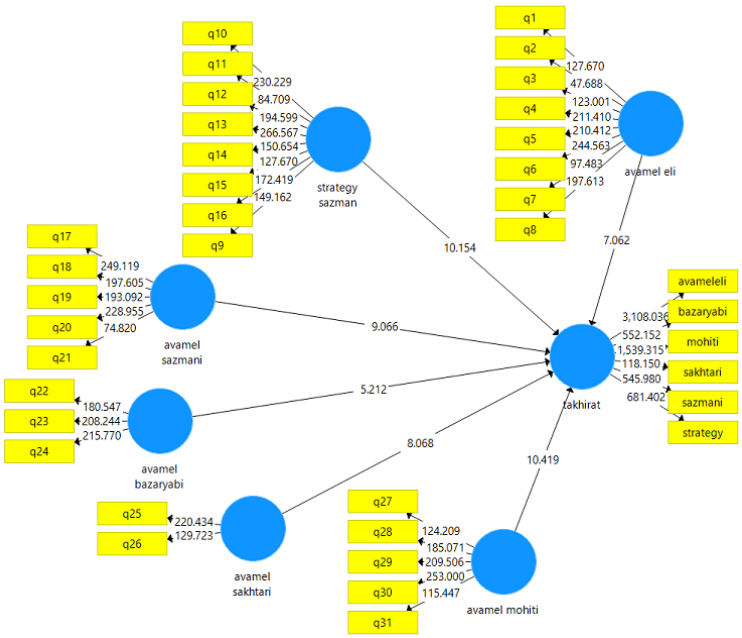

Fig. 2. Path analysis of the research conceptual model in terms of significance values.

Furthermore, the R^2 coefficient was used to assess the fit of the structural model, the Q^2 criterion was used to evaluate the model's predictive power, and the Goodness-of-Fit (GOF) criterion was employed to assess the overall model. The results are presented in *Table 7*.

Table 7. Results for the R^2, Q^2, and GOF Criteria.

Criterion/Variable	Value/Interpretation
R^2 criterion	0.19 = Weak; 0.33 = Moderate; 0.67 = Strong
Q^2 criterion	0.02 = Weak; 0.15 = Moderate; 0.35 = Strong
GOF criterion	0.01 = Weak; 0.25 = Moderate; 0.36 = Strong
E-commerce challenges	R^2 = 0.995; Q^2 = 0.945; GOF = 0.981

6 | Discussion and Comparison

The present study was conducted with the aim of identifying and evaluating delays in quay construction projects in southern Iran. To achieve the objectives of the study, first, through a comprehensive review of the literature and an evaluation of previous studies, the factors and components affecting delays in quay construction projects in southern Iran were identified and extracted. Subsequently, using thematic analysis among professors and experts in the target population, the factors and components affecting delays in quay construction projects in southern Iran were identified. Finally, the relationships among the identified factors were examined using SEM.

The results of the thematic analysis indicate that the factors and components affecting delays in quay construction projects in southern Iran consist of 6 factors and 31 components, including contextual factors (development and presentation of business start-up plans, access to information, creation of e-commerce motivation, power and competitiveness in international markets, financial infrastructure, political infrastructure, competitive-market infrastructure, and contextual infrastructure); organizational strategies (diversified product strategy, product development strategy, customer-oriented strategy, competitive strategy, social leadership strategy, multiple strategies for achieving objectives, differentiation strategy, and marketing-program strategies); organizational factors (enhancement of competitive advantage, application of standards and capabilities, improvement of optimal performance, sustainability of social performance, and economic opportunities); marketing factors (behavioral tools for customer retention, attractiveness of access to social

markets, and marketing-mix tools); structural factors (identification and understanding of customer needs and designing plans for entering global markets); and environmental factors (community regulations, identification of target markets, efficient and appropriate use of resources, exchange-rate fluctuations, behavioral interventions, and environmental conditions).

7 | Conclusion

The main objective of the present study was to identify and evaluate delays in quay construction projects in southern Iran. The results of the thematic analysis indicate that the factors and components affecting delays in quay construction projects in southern Iran consist of 6 factors and 31 components. These include contextual factors (development and presentation of business start-up plans, access to information, creation of e-commerce motivation, power and competitiveness in international markets, financial infrastructure, political infrastructure, competitive-market infrastructure, and contextual infrastructure); organizational strategies (diversified product strategy, product development strategy, customer-oriented strategy, competitive strategy, social leadership strategy, multiple strategies for achieving objectives, differentiation strategy, and marketing-program strategies); organizational factors (enhancement of competitive advantage, application of standards and capabilities, improvement of optimal performance, sustainability of social performance, and economic opportunities); marketing factors (behavioral tools for customer retention, attractiveness of access to social markets, and marketing-mix tools); structural factors (identification and understanding of customer needs and designing plans for entering global markets); and environmental factors (community regulations, identification of target markets, efficient and appropriate use of resources, exchange-rate fluctuations, behavioral interventions, and environmental conditions).

In response to the research question, "What is the status of the factors affecting delays in quay construction projects in southern Iran?", the present study developed and tested six hypotheses.

Hypothesis 1. Effect of causal factors

H1: Causal factors have a significant effect on delays in quay construction projects in southern Iran.

The significance statistic for *Hypothesis 1* was 7.062, which is greater than 1.96. Therefore, H0 was rejected and H1, which examined the direct and significant effect of causal factors on delays in quay construction projects in southern Iran, was supported. The standardized coefficient for the relationship between causal factors and delays was 0.165. Therefore, the research hypothesis was supported.

Hypothesis 2. Effect of organizational strategies

H1: Organizational strategies have a significant effect on delays in quay construction projects in southern Iran.

The significance statistic for *Hypothesis 2* was 10.154, which is greater than 1.96. Therefore, H0 was rejected and H1 was supported. The standardized coefficient for the relationship between organizational strategies and delays in quay construction projects in southern Iran was 0.109. Therefore, the research hypothesis was supported.

Hypothesis 3. Effect of organizational factors

H1: Organizational factors have a significant effect on delays in quay construction projects in southern Iran.

The significance statistic for *Hypothesis 3* was 9.066, which is greater than 1.96. Therefore, H0 was rejected and H1 was supported. The standardized coefficient for the relationship between organizational factors and delays in quay construction projects in southern Iran was 0.204. Therefore, the research hypothesis was supported.

Hypothesis 4. Effect of marketing factors

H1: Marketing factors have a significant effect on delays in quay construction projects in southern Iran.

The significance statistic for *Hypothesis 4* was 5.212, which is greater than 1.96. Therefore, H0 was rejected and H1 was supported. The standardized coefficient for the relationship between marketing factors and delays in quay construction projects in southern Iran was 0.186. Therefore, the research hypothesis was supported.

Hypothesis 5. Effect of structural factors

H1: Structural factors have a significant effect on delays in quay construction projects in southern Iran.

The significance statistic for *Hypothesis 5* was 8.068, which is greater than 1.96. Therefore, H0 was rejected and H1 was supported. The standardized coefficient for the relationship between structural factors and delays in quay construction projects in southern Iran was 0.169. Therefore, the research hypothesis was supported.

Hypothesis 6. Effect of environmental factors

H1: Environmental factors have a significant effect on delays in quay construction projects in southern Iran.

The significance statistic for *Hypothesis 6* was 10.419, which is greater than 1.96. Therefore, H0 was rejected and H1 was supported. The standardized coefficient for the relationship between environmental factors and delays in quay construction projects in southern Iran was 0.191. Therefore, the research hypothesis was supported.

7.1 | Validity and Fit of the Conceptual Model

In this study, the researchers sought to determine how the validity of the conceptual model of delays in quay construction projects in southern Iran could be established. The KMO value of the overall model was greater than 0.60. Moreover, because the significance level of the Bartlett's test for the model was lower than the research error level (0.05), the adequacy of the sampling was confirmed.

As shown in the correlation matrix, the correlations between the items and their respective constructs were greater than the correlations between those items and the other constructs. This finding provides evidence of satisfactory discriminant validity in the model.

Since the Average Variance Extracted (AVE) for the research variables was above 0.50, acceptable convergent validity was established. Furthermore, the square root of the AVE for all constructs was greater than their respective correlation coefficients; consequently, the constructs demonstrated satisfactory discriminant validity.

The findings of this study indicate an appropriate fit for the proposed conceptual model. The results of the structural model assessment and the goodness-of-fit indices demonstrate that the data collected from the study sample are sufficiently consistent with and fit the research model. Therefore, the proposed model was confirmed, and all hypothesized relationships were supported.

7.2 | Practical Recommendations

Based on the findings of the study, the following practical recommendations are proposed:

Managers of quay construction projects in southern Iran should encourage employees to experiment with new ways of performing tasks and should foster creativity and innovation within their organizations.

Organizations should create an environment in which employees and managers can present their ideas without fear or hesitation. Employees should be given opportunities to propose and test new ideas.

Managers of quay construction projects in southern Iran should use market research to identify customers' needs and expectations and to identify competitors' strengths and weaknesses. Market research should also be used to optimize marketing activities.

Business planners should continuously proceed according to established plans and schedules for organizational development in the market and should employ bold and aggressive competitive strategies when appropriate.

Managers of quay construction projects in southern Iran should plan for organizational advancement and improving customer loyalty, since increased customer loyalty influences customers' preferences and decision-making.

Companies should invest in how products and services are presented to customers, promote innovation, and meet customer needs so that customers remain loyal advocates. Customer satisfaction alone is not sufficient.

Managers of quay construction projects in southern Iran should keep their knowledge up to date, strengthen their analytical capabilities, and make use of experienced experts and sales representatives.

Strategic managers should devote greater attention to training employees in market-entry strategies and selecting the most appropriate strategy. They should also allocate financial and human resources to this purpose and support other organizational units.

Employees should receive appropriate training on interaction and negotiation, taking into account cultural, linguistic, and religious differences in target countries, as well as the behavioral requirements of those markets.

Through training programs and participation in international exhibitions, companies should enhance the knowledge and capabilities of their employees.

Companies can use local agents operating in destination markets to update their market information. They can also include foreign business-opportunity identification in their market-entry plans so that responsibility for international market presence can be shared among business partners, thereby compensating for limited access to customers and information.

Companies should investigate and verify committed representatives through domestic and international sources so that they can establish greater confidence in distributors and facilitate distribution and logistics processes.

By establishing trade and distribution associations, reputable representatives can be introduced to one another and local-product representatives can be introduced to foreign markets. This can help reduce transportation costs, facilitate timely and cost-effective transportation, and promote bilateral trade and barter between countries while eliminating unnecessary intermediaries from distribution channels.

Given that competition in Iran is characterized by cash sales and relatively low working capital compared with credit sales and higher working capital in domestic markets, competitors in foreign markets take customers' habits and attitudes into account in their marketing programs. Therefore, companies should make every effort to understand the requirements and limitations of target markets and present their products in ways that satisfy customer expectations while making the product's competitive advantages readily apparent.

Given the unique quality of their products, companies can enter these markets through effective presentation and communication. They should continuously monitor different markets and country conditions to identify suitable business opportunities and develop strategic plans and appropriate marketing strategies.

Target markets should first be prioritized, and export plans should then be developed based on political similarities, customs costs, and reciprocal political commitments between the governments of the countries of origin and destination.

Exchange-rate differences can be reduced to some extent through pricing in a common international currency. Companies should also examine countries' economic growth and select appropriate opportunities accordingly.

It is recommended that service quality be strengthened in three dimensions: physical, situational, and behavioral. Service quality is one of the most important determinants of the success of sales representatives in today's competitive environment. Any decline in customer satisfaction resulting from poor service quality can create serious concerns for service organizations.

Customers have become more sensitive to service standards, and as competitive pressures increase, their expectations regarding service quality have also risen. Different approaches to quality—including the philosophical approach, which views quality as inherent excellence; the technical approach; the conformity-to-standards approach; and the customer-oriented approach—should be incorporated into service development.

Services, understood as a set of activities, processes, and interactions provided to solve customers' problems, should be continuously developed and improved.

Competition aimed at improving service development should be regarded as a key strategic issue. Industries operating in increasingly competitive environments play an important role in overall economic growth, particularly in developed countries. Nevertheless, developing countries also continue to pursue growth through service development.

Organizations should meet the needs and expectations of their customers and interact appropriately with clients. Customers are valuable assets to every organization because sales representatives will be successful when they put themselves in their customers' position and provide services from the customers' perspective.

The service system should be strengthened in terms of the infrastructure and resources required for service delivery. These resources include the necessary employees, physical facilities, and equipment.

Organizational objectives and strategies should be clearly defined, ideas should be generated and screened, and customer needs should be identified. The process should begin with a precise understanding of customer requirements and a clear explanation of how those requirements can be addressed.

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