

The Effects of Strategic and Employee Factors on Project Performance of Iraqi Public Construction Projects



Mohammed Hatem Obaid, Nurul Fadly Habidin

Abstract: *There has been a persistent reported increase in project failure in many Iraqi's construction public project. This has resulted in project withdrawal from contractors, and revoking of companies licenses due to weak performance. This study investigated the effect of strategic and employee factors on the performance of construction public projects in Iraqi. The findings indicated that strategic and employee factors were statistically significant and they are important determinants for performance measurement. On the overall, the employee factors are more important than strategic factors and its component rewards is the most important variables. There is therefore a need for policy makers in Iraqi to focus on strengthening the role of strategic and employee factors in enhancing the project performance in construction projects.*

Keywords: *Construction, Success factors, Project failure, Project performance, Strategic Factor, Employee Factors..*

I. INTRODUCTION

Performance of project is essential for the development of a country. It contributes to several economic sectors. The Republic of Iraq is a developing country with a population of 36 million people which is located in the Middle East. The country has been undergone a series of political and economic turmoil during the last three decades. These wars have resulted in total destruction of the country's infrastructure, which includes residential premises, schools, hospitals, highways, and many other basic infrastructure amenities [1]. The quest to rebuild these dilapidated amenities by the country's public construction sectors has been bedeviled with persistent project [2]. Incidences such as the collapse of these amenities has led to project withdrawal from contractors and revoking of companies [1].

These reported weak performance in project execution by these sectors has been a major point of concern to the government of Iraq. There is therefore a need to study the success factor for an improved performance of public project in the Iraq. The purpose of this study is to determine the effect of selected factors on the project performance of Iraqi public construction projects. Construction projects is a

high-risk venture and for it to be successfully implemented there is a need for an effective management of resources (people, equipment, materials), time (task durations, critical path), money (costs, profits, contingencies), and scope (project size, goals requirements) [3].

There are three important criteria employed in the measurement of project success in construction projects as analyzed by [4]. These three parameters are called "iron triangle" which include time, cost and quality of projects. [5] suggested two levels of construction project success viz: macro and the micro level. The macro level deals with the project effectiveness in achieving the overall objectives which is mainly concerned with the clients and user. The micro level deals with the project efficiency which traditionally follows the view of "iron triangle" and is concerned with the contractors and consultants.

However, other factors such as the customer involvement and acceptance, have gained importance in recent years [6], [7]. [8] investigated the project success in Brazil using data collected from 336 and these were tested using logistic regression. The results showed that the project management maturity is significantly related to all vertices of the iron triangle dimensions of success (time, cost and technical performance). However, it is not related to the customer satisfaction dimension. In this study, it was assumed that if a project's completion time exceeded its due date, or expenses overran the budget, or outcomes did not satisfy a company's predetermined performance criteria, the project was assumed to be a failure.

This research adopts the traditional criteria view of project success where the project is considered successful if it is delivered on agreed time, cost, and quality. This is because these criteria are still valid to give clear picture at least in Iraq about the project success. The delivery on time was one of the most important criteria. In addition, the quality is also important since the projects are public and they are designed to serve citizens for long time. Lastly, the cost is a major factor in the success of the project since the government is accountable in front of the tax payers [9], [10]. The study aims to examine the effect of the strategic and employee factors on the project performance of Iraqi public construction projects. In addition, the study aims to determine the effect of employee related factors on the project performance of Iraqi public construction projects. In addition, the study aims to determine the mediating effect of knowledge transfer and the moderating effect of safety and experience.

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*Correspondence Author(s)

Mohammed Hatem Obaid*, Faculty of Management and Economics Sultan Idris Education University, Malaysia. Email: mo.hatem7@gmail.com
Nurul Fadly Habidin, Faculty of Management and Economics Sultan Idris Education University, Malaysia.

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II. LITERATURE REVIEW

A. Overview of Project Success

Project success is used interchangeably with project performance. Previous studies used the terms interchangeably. For example, [11] investigated the project performance using the project success as the performance of the project. Construction projects involve high-risk undertakings, and for a project to be successfully implemented in today's business environment, resources (people, equipment, materials), time (task durations, critical path), money (costs, profits, contingencies), and scope (project size, goals requirements) must be managed effectively to stay competitive and profitable in the market [3]. These factors can be achieved through adequate planning and having a good project control system in place to ensure that the project is implemented effectively. Driven by a desire to improve project success, understanding the attributes of success becomes very crucial to improving construction efficiency, safety, productivity, and saving money and time [12]. The construction industry is dynamic in nature and the concept of project success is subjective in nature. Success means different thing for different stakeholders. Nevertheless, the majority of the literature on the opinion that success is to deliver the project on time within the specified cost and quality [13]. While some authors consider time, cost and quality as the predominant targets, others suggest that success is something more complex. [14] refers to project success as stated in terms of meeting three objectives: 1) completed on time, 2) completed within budget, and 3) completed at the desired level of quality. Project success is defined as achieving results much better than expected or normally observed in terms of cost, schedule, quality, safety, and participant satisfaction [15]. [16] describe success as "gaining advantage, superiority, victory, accomplishment, achievement, and added value. It can be seen that project success differ based on the stakeholders. However, since this study is looking into the success in term of delivering the projects at the right time within the cost and quality, the definition of [14] who specified the project success by achievement the objectives of time, cost and quality is adopted in this study because it suits the context of the study.

B. Description of Construction Industry in Iraq

Iraq, which is a developing country in the Middle East with a population of 30 million people, has been undergoing a series of political and economic turmoil during the last three decades. These wars have resulted in total destruction of the country's infrastructure, which includes residential premises, schools, hospitals, highways, and many other basic infrastructure amenities. In the 1990s, large government investments in housing projects and elaborate public structures created a flourishing industry that was eventually disrupted due to ongoing wars.

However, since 2003, the government has started many initiatives to rebuild the country's infrastructure to cater for the needed facilities. In this respect a great emphasis has been placed on project success. The country is in great need for project success to rebuild what has been destroyed and to provide shelter for those who have been homeless after the war. Moreover, emphasis on construction projects will also

expected to provide facilities and amenities for education such as schools and universities [17]. They provides investors with details of investment opportunities claims that Iraq's reconstruction has created a huge demand for construction expertise and capital. Moreover, the report also boasts of abundant of opportunities in Iraq for real estate development, construction, and building material industries, which are all ripe and ready for investment [17].

Domestic construction sector has begun to grow alongside the large foreign builders, but few have developed the capacity for the kind of large-scale development needed. The current estimates of reconstruction expenditure in Iraq run into tens of billions of USD, with US-AID conservatively estimating at least \$150 billion [17]. As per the aspiration of the NIC, modern office buildings, industrial parks, new universities, sports stadiums, municipal buildings, port facilities, and regional development hubs are all part of the upcoming national development plans in Iraq [17].

III. METHODS

A. Sampling

This study investigated the factors affecting the performance of projects in Iraq. Thus, the respondents for this study are only those who have proper understanding of this study and with adequate information with experience. Data were collected through the implementation of the purposive sampling technique. For this purpose, inclusion criteria were determined to include only those with experience of project management, have at least bachelor degree and worked in public projects in Iraq. Thus, a questions on the top of the questionnaire asked the respondents if they have worked with public projects, have bachelor degree and knowledge about project management. The sample size of this study was 370 respondents.

B. Data Collection

Closed ended questionnaire was structured for the collection of data in this study. These was obtained from different respondent in Iraqi public construction companies. They are made up of engineers, site managers, and project managers who work in projects. As a result, a total of 267 responses were collected from which 27 and 19 were deleted due to missing value issue and outliers' issues respectively. This resulted in 221 complete and usable responses that makes a response rate of 43.4%, which is sufficient for use in Smart PLS analysis [18], [19].

C. Data Examination

The validity of the measurement was checked together with the reliability to ensure that they were valid and reliable. A total of 21 experts in project management from Iraq and other countries were invited to validate the questionnaire. The experts were selected based on their experience in project management. All suggestions, deletions, and addition of items and corrections were provided and addressed by these experts.

The preliminary analysis was conducted to ensure the goodness and the readiness of the data for further analysis and this was followed by the frequency analysis of the missing values. The univariate outliers were then checked to identify and exclude the outliers. This was conducted by examining the standardized values (z-scores). Moreover, the multivariate outliers was detected by examining the Mahalanobis distance for each case as recommended by [20]. The skewness and kurtosis values (Table 2) were estimated to test whether the data were normally distributed. The SPSS tool was deployed to conduct Exploratory Factor Analysis (EFA) of the variables. The factor with loading less than 0.5 was deleted as recommended by [20].

IV. RESULTS

A. Hypothesis Testing for Strategic Factors

The first hypotheses for this study states that the effect of strategic factors on the project performance should be statistically significant. The other three sub-hypotheses expected also that the effect of management support, common philosophy, and decision making to be significant on the project performance. Table I shows the result of hypotheses testing of the effect of strategic factors and its components on project performance. The first hypothesis of this study states that "H1: Strategic related factors have significant effect on the project performance of Iraqi public project". The results in Table 3 revealed that the hypothesis is significant ($\beta = 0.300$, $T=4.889$, $P<0.001$). The effect of strategic factors as a construct is significant on project performance. Thus, the first hypothesis (H1) supported that an increase in the strategic factors by '1' standard deviation (SD) will lead to an increase of 0.30 in project performance.

B. Hypothesis Testing for Employee Factors

The second hypothesis and its sub-hypotheses predicted that employee factors with its components training and development, commitment and rewards affect project performance significantly. Table 4 presented the results of hypotheses testing. The statement on the second main hypothesis stated that "H2: Employee related factors have significant effect on the project performance of Iraqi public project." The results therefore indicated that the effect of employee factors on the project performance of Iraqi public project is significant ($\beta = 0.595$, $T=10.259$, $P<0.001$). Therefore, H2 indicated that an increase in the employee factors will lead to an increase in the project performance of public projects in Iraq.

V. DISCUSSION

The results of hypotheses testing indicated that strategic factors have significant positive effect on the project performance on Iraqi construction public project. Thus, in order for the management to increase the performance of public project, they have to increase the strategic factors. The positive effect of strategic factors could be related to the fact that they are necessary to provide a direction for organizations. Developing a common philosophy where all the employees understood the philosophy and participate in fulfilling the vision will lead to high project performance. In addition, having the management support for employees and project manager will lead to better execution of the project and will increase the likelihood of completing the

project within the specified time, cost, and quality. Further, involving all stakeholders and especially employees in decision making makes the employees motivated to make the project a success. These factors together constitute the strategic factors that the management can control to improve the project performance. Previous studies highlighted the importance of strategic factors for the success and better performance of projects. In South Africa, [21] conducted a study to identify the most important factors for the success of construction project and found that strategic factors are the most important which have significant impact on the success of construction projects.

Furthermore, a study was conducted by [22] pointed out that strategic factors could explain the variation in project success. [23] also pointed out that strategic factors have significant impact on project performance. Accordingly, organization in Iraq can use their strategic capabilities such as setting efficient organizational culture and spreading the philosophy as well as using the management capabilities to encourage the involvement of employees in decision making and providing them with adequate support, leads to significant impact on the project performance.

The second hypothesis of this study is to find the effect of employee factors and its components on the project performance of Iraqi public construction projects. The findings from this study indicated that employee factors are critical to the project performance in Iraq. The result of hypotheses showed that employee factors affect significantly the project performance. Employee factors are more important than strategic factors (based on the coefficients). Thus, the increase the project performance, decision makers must focus on the employee factors first then on the strategic factors. This is logic because employees are the people who will execute and complete the project while the strategic factors are complementary to the performance.

Employee factors included the training and development, commitment to project, and rewards. Highly training and skilled employees are important for achieving better project performance. In addition, the promotion and the development of the career are motives for employees to enhance their performance which will ultimately lead to an improved project performance. Commitment to the project and to the management is also essential because the committed employees are more active in fulfilling the organizational as well as the project objectives and strive to make the project a success. Rewards are the most important variables that affect the project performance. When employees are rewarded for their performance, other will imitate the behavior to be liable for a reward. This makes all the employees actively participating and improving their performance to be legible for rewards. The findings from this study are in agreement with that from previous studies. [24] pointed out that human factors such as those related to employees are important to achieve project success. [15] pointed out that employee factors are important for project performance.

VI. IMPLICATIONS AND CONCLUSION

This study investigated the effect of strategic factors and employee factors on the performance of construction public projects in Iraqi. The findings indicated that strategic factors are important determinants of performance in construction projects in Iraqi. Decision makers and policy makers in Iraqi therefore need to focus on strengthening the role of strategic factors to enhance the project performance. They are encouraged to provide support for public projects because the success of this project is a success for all other sectors. Implanting the significance of the public project into the organizational culture and continuously reminding the employees that public project success affects not only the government but also the people of the country. Take for instance, a successful public school project will provide students with access to education. Similarly, a successful public hospital project will provide medical care to all citizens and reduces the burden and suffering of people. Communicating these values to employees and making them understand the importance of their works will increase their effectiveness and their motives to make the project a success.

Employee factors, such as rewards, training, development, and commitment to the project, are more important than strategic factors. This include decision making, management support, and development of common philosophy. Decision makers have to focus more on the employee factors to increase the project performance and achieve successful projects. Rewards are the most important factor and decision makers are recommended to link the performance to rewards. In other words, they are recommended to apply the practice “pay-based performance”. High performing employees must be rewarded publicly. The rewards can be financial or non-financial. Spreading this culture of rewards could lead other employees to imitate the behavior of the high performer to be entitled for rewards. Moreover, training and development is also an important factor. Decision makers are recommended to imitate training need analysis and to discuss more the training need with employees. The performance of employees must be also linked with the promotion in the career ladder. Thus, high performing employees must be promoted to higher position in order to enforce a behavior that highly skilled employees are on the top of the list in term of rewards and promotion. Commitment to project is also an essential factor necessary for an improved project performance. Top management has to increase the commitment of employees by spreading a culture of justice. Implementing organizational justice and making sure that only those who deserve the rewards will be rewarded and those who are qualified will be promoted thereby increasing their commitment to the project and to the organization.

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