



CRITICAL FACTORS INFLUENCING THE ADOPTION OF THE BUILD OPERATE TRANSFER (BOT) SYSTEM IN THE GULF AREAS: A COMPREHENSIVE REVIEW

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Abstract- The Build-Operate-Transfer (BOT) model has gained significant attention worldwide as a solution for major public infrastructure development. The Gulf Cooperation Council (GCC) countries, renowned for their government surpluses and oil reserves, are particularly interested in implementing the BOT model to drive economic development and diversification and transform the region into a trade and financial center. However, there is a research gap in understanding the critical factors influencing the adoption of BOT in the GCC region. This paper aims to address this gap by identifying these factors, assessing their impact on project performance, and proposing measures to ensure the success of BOT systems. Through a comprehensive literature review, this study identifies government support, risk allocation, local financial market conditions, project selection, and a strong private consortium as crucial factors for BOT project success. The research methodology involves data collection through a systematic literature review and data analysis using the Likert Scale method. The results of this study provide valuable insights for decision-makers in both the public and private sectors, enabling them to make informed decisions and improve the efficiency of BOT projects in the construction industry. By understanding these critical factors, stakeholders can optimize project outcomes and contribute to the overall development and diversification goals of the GCC region.

Keywords- Build Operate Transfer (BOT) system, Contractual agreements, Infrastructure, GCC

1 Introduction

The concept of BOT gathered attention after the global need for major public infrastructural development has become an increasingly demanding. The basis of a sustainable and fruitful society is based on impressive economic growth and an increase in population which has led to significant demand for public infrastructure [1] Countries in the Gulf Cooperation Council (GCC) region, known for their government surpluses and oil reserves, are keen on implementing BOT as a financial model to transform the region into a trade and financial center and achieve economic development and diversification [2]

Sarvari et al. (2019) as cited by Asad M, and Mahoud M, (Asad & Mahoud, n.d.) defined “BOT as an arrangement of contract in which the private sector finances a public infrastructure's design, construction, operation, and maintenance for a particular concession period, and at the end of it transfers the ownership to the government”.

Several studies have been conducted to identify the critical factors influencing BOT implementation, particularly in the GCC region. [2]. The COVID-19 pandemic and oil price levels have further motivated the Gulf region to explore BOT as a means to address their energy and infrastructure needs [3]. Stakeholders' interests and effective project delivery are



crucial for the success of BOT projects. Factors such as legal concerns, government support, project clarity, and equitable deals for all parties play a significant role.[4]

However, there is a research gap in understanding the common critical factors affecting BOT adoption in the GCC region. To fill this gap, the study aims to identify these factors, assess their impact on project performance, and propose measures to ensure the success of BOT systems. The findings can guide decision-makers in both the public and private sectors to make informed decisions and improve the efficiency of BOT projects in the construction industry.

1.1 Literature Review

Study has shown that, BOT contracts are difficult to win. The process is, however, burdensome and it requires time, money, experience, and political influence. Given this, the type of project delivery involves higher risk, and making decisive decisions is complex. The evolution of this PDS has changed over time, and its implementation has been considered getting better. Due to the extensive research in this area, the government (public sector) and private sector (Consortium) have minimized disputable endings by having clear knowledge of meeting in an agreeable term. There are lots of critical success factors (CSFs) that are very significant for BOT investors to adopt if they want to continue winning BOT contracts [5]

Amongst the many other factors, there are some important factors that both parties will agree upon. These crucial elements include choosing the appropriate project [7], the consortium's strength, the advantage of the technical solution, the differentiation of the financial package, the guarantee, and entrepreneurship and leadership. If these factors are integrated and given trending attention, the possibility of winning a BOT contract will be enhanced [5]. Moreover, the evaluation of achieving success in the construction industry is based on the appropriate selection criteria for project adoption [5].

Considering the GCC region, there will be slightly different from each country, depending on their operational environment, policies, and legal restriction which is likely the same. However, Studies and discussions about CSFs for BOT projects within the GCC region have been previously done. Five main CSF dimensions, including "economic viability," "sound financial package," appropriate risk allocation via reliable contractual arrangements," "reliable concessionaire consortium with strong technical strength," and "favourable investment environment," have been to categorize CSFs of public-private partnership projects like BOT. [1]. Furthermore, a study was done in Kuwait to identify the critical factor for the implementation of the BOT system by considering a major infrastructural project. Government representatives and concessionaires both concur that effective project management is a key component of BOT project success. This finding might be interpreted in the context of developing and funding various socioeconomic programs as:" Shadadiyah The expansion of the tourism industry on Failaka Island, Bubian Island, the Shadadiyah University Campus (investment in human capital), and the Jaber Al Ahmed AlSabah Hospital" [6]

Several studies have shown that Kingdom of Saudi Arabia haven't participated in the BOT contracts actively in past years but now, Saudi government have shown interest in these kinds of projects to overcome the difference between mining sector, religious tourism, and development on the national level.[12]

2 Research Methodology

The research methodology encompasses two distinct stages, namely Data Collection and Data Analysis. These stages are crucial in ensuring a comprehensive and systematic approach to the research process.

2.1 Stage 1: Data Collection

The first stage is comprised of collecting data through reviewing literature from 15 different articles on relevant to BOT project delivery. To understand the underlying critical factors affecting the adoption of the BOT project delivery system in the GCC region, this study implemented a partial systematic literature review on the critical factors affecting the success and failure factors of selected papers that are published in top construction engineering journals. About 16 critical factors based on occurrences within the GCC region were identified. These success factors indicate the prevailing factors that are ubiquitous in the GCC region which helped in explaining the extent to which the factors were going to affect the adoption of the BOT project delivery system and the mitigating measures for a successive BOT system.



2.2 Stage 2: Data Analysis

In the second stage of methodology, the collected data was analyzed using a Likert Scale method. Sixteen (16) critical success factors were selected as common factors affecting the adoption of the BOT project delivery system in the GCC region. Amongst these factors, the occurrence and/or frequency at which these factors are affecting the implementation of BOT in the GCC countries are highlighted based on several published papers related to this type of project delivery system. The scaling method helped to represent an interval level of measurement that had given a clear interpretation of the level of importance of the factors in a sequential means whilst adopting BOT projects. The scale ranges from 6 and above as extremely critical, 4-5 as Moderately Critical, and 1-3 as Least critical.

3 Results

The data collection showed that the Government Role/Support is extremely critical for the adoption of BOT projects within the GCC region. Factors like the Local Financial Market, Project Selection, and Strong Private Consortium are significantly considered in the adoption of this type of project delivery system.

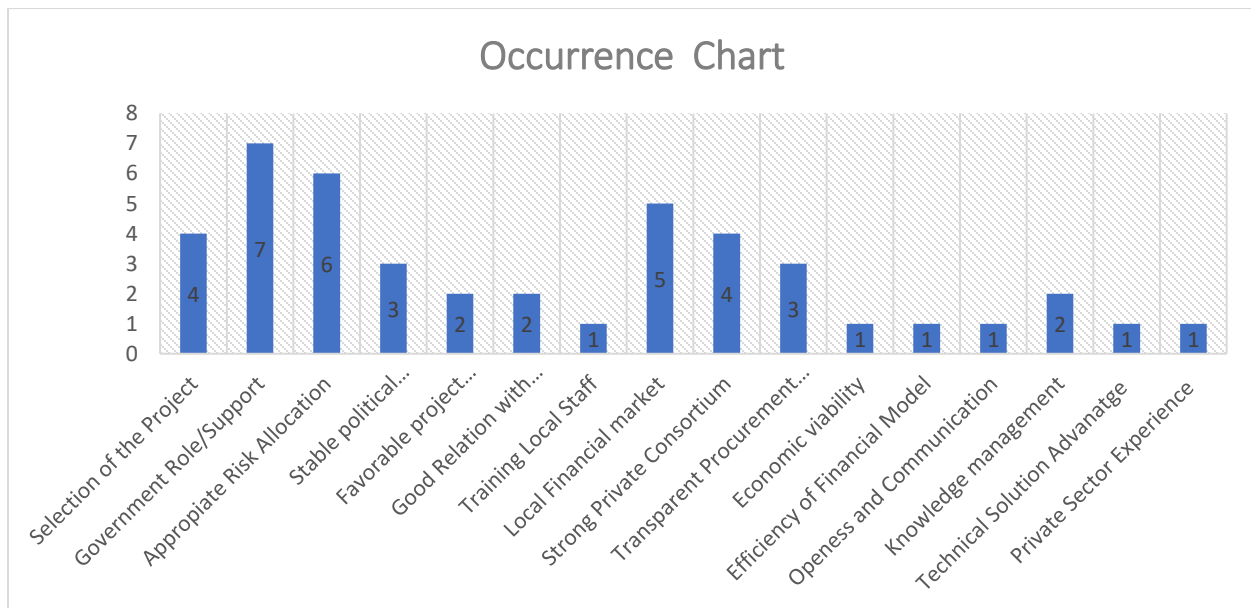


Figure 1: Success factors on the scale of occurrence

The research findings highlight the crucial factors influencing the adoption of BOT projects in the GCC region. According to the Likert Scale ratings, the Government role/support and Appropriate Risk Allocation are rated as extremely critical, scoring 6 and above. These factors play a pivotal role in ensuring the success and effectiveness of the BOT model in the region.

On the other hand, factors such as the Local Financial Market, Selection of project, and Strong Private Consortium receive a rating of 4-5 on the Likert Scale, indicating their moderately critical impact on the adoption of BOT projects in the GCC region. These factors, while not as crucial as the government's role and risk allocation, still hold significant influence in the overall success of BOT projects.

To ensure success in the BOT projects, the extremely critical factors are important to be known by all GULF countries to bolster their infrastructural development goal. To achieve this, the analysis above has helped in the assessment of these common factors. The extremely critical factors are:

- 1. Government Role/ Support:** The lengthy and complex process is crucial to the BOT project's success, and the continuous support of the government by providing attractive incentives to the stakeholders and private sectors to come and invest in the local market. Government must offer good return rates and provide a firm mechanism to deal with legal frameworks related to the project. [10]



Table 1 Likert Scale interval for factors affecting BOT Projects in the GCC region

Factors	Intervals	Description
- Government role/Support - Appropriate Risk Allocation	6 and above	Extremely Critical
- Local Financial Market - Selection of project - Strong Private Consortium	4-5	Moderate critical
< = 3 factors	1-3	Least Critical

2. **Appropriate risk allocation:** Allocation of risk is the most essential part of the success of the BOT project as it requires complete knowledge of identification, classification, and management of risk associated with both parties. For example, the investment risk, parties who are going to invest in the project must ensure that there is no political instability in the country, or their law must support preparing a sound environment for the projects.[10]

Furthermore, the factors of moderate significance are delineated as follows.

- I. **Local Financial Market:** The success of these types of projects immensely depends on the favorable market condition of the host country. The depth of the financial market might have a huge impact on the life of the project. All government taxation policies should be established in advance to get a clear concept of market conditions.[9]
- II. **Selection of the Project:** the selection of the project hugely impacts the success of the BOT projects. Due to constraints related to budget, the government should focus on those projects which have the highest priorities in terms of safeguarding the interest of the private and public sectors.[8]
- III. **Strong Private Consortium:** As the risk is shifted from the government to the private sector in such types of projects, the private consortium must be strong enough to bear the weightage of the project. There must be strong communication between the private sector and the host government. The strong organizational structure of the private party might play an effective role in the success of BOT projects.[8]

4 Conclusions

As the whole world is going for different approaches to developing their economies and infrastructure, GULF-related countries have also shown interest in the involvement of private sectors to contribute with the government bodies under specific contractual agreements. Due to the influence of Covid_19 and oil price levels, the GCC region must aspire to this BOT method so it would boost their energy and infrastructural needs. There have been studies on BOT methods but still, there is a huge research gap on stake holder's interest in the project. This difference between investors' expectations and project outcome generally defines the success of the project.

However, this Term paper reviewed several research on the type of project delivery that helps to give us insight into identifying the factors, the extent of the critical performance factors influencing the adoption of the BOT project, and the possible mitigating measures. This Term paper achieved that Government Role/Support and Appropriate Risk Allocation are the common factors within the GCC region that are extremely critical factors that both contracting parties should consider when implementing BOT projects. Local Financial Market, Selection of the Project, and Strong Private Consortium are moderately critical. Hence, the rest of the factors are least critical.

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