



FACTORS EFFECTING STAKEHOLDER ENGAGEMENT IN DESIGN BID BUILT

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Abstract- This study examines stakeholder management in Design-Bid-Build (DBB) projects, a previously under-researched area. Using a mixed-method survey with expert input, we highlight the critical role of early stakeholder involvement, particularly during project selection. The research also identifies opportunities for improvement, such as ongoing needs assessment, culturally adaptable project structures, and fostering stakeholder awareness of social, economic, and environmental (SEEEPLL) considerations. We propose a strategic approach focused on early engagement, continuous needs evaluation, and culturally sensitive structures. This approach, combined with enhanced SEEEPLL understanding, can significantly improve stakeholder participation and project outcomes in DBB environments.

Keywords- DBB Projects, Stakeholder Management, Project Management, Stakeholder Engagement.

1 Introduction

According to the PMI a stakeholder is defined as “Stakeholders can be individuals, groups, or organizations that may affect, be affected by, or perceive themselves to be affected by a decision, activity, or outcome of a portfolio, program, or project. Stakeholders also directly or indirectly influence a project, its performance, or outcome in either a positive or negative way” [1]. The terminology stakeholder is broadly explained by various professional and well-known organizations such as Project Management Institute (PMI) in his book PMBOK 7th edition. According to this a stakeholder can affect a project in many ways in terms of scope, cost, scheduling, outcomes, success etc. and these are not limited. In most cases the stakeholder is engaged throughout the project life cycle . With the traditional Design-Bid-Build (DBB) project delivery system, the project owner contracts with different organizations for the design and construction stages. The design phase is completed first in DBB, and then contractors bid for the building work using the finalized blueprints. Insufficient management of stakeholders can lead to significant problems, such as delays or exceeding the budget. Therefore, it is important to consider the needs and concerns of all stakeholders at every stage of a project. This article will delve into the importance of stakeholder management in project management. To gain a more comprehensive understanding of the topic, we will analyze examples and theories from past studies.

2 Literature Review

Project delays, public conflicts, and legal disputes resulting from inadequate stakeholder management at the Zhuhai-Hong Kong-Macao Sea crossing bridge demonstrate the need to involve stakeholders in projects. Numerous research confirms the need of include stakeholders in building projects and show how it can improve important aspects like quality, cost, and schedule [2]. Still, a large amount of the literature now in publication focuses on collaborative delivery techniques like Integrated Project Delivery (IPD), which leaves a dearth of studies that particularly address stakeholder management inside the Design-Bid-Build (DBB) paradigm [3]. Dealing with competing interests in DBB contracts and engaging with stakeholder’s present difficulties, as has been acknowledged [4] in-depth examination of other stakeholder management



strategies in Design-Bid-Build (DBB) projects is yet lacking [5]. Engaging stakeholders is essential to project success, sustainable development, and handling complex socioeconomic dynamics [6].

Either internal or external stakeholders have a big influence on how a project turns out. For one to control their impact and expectations, one must assess and communicate clearly [7]. Important phases in this process are identifying and classifying

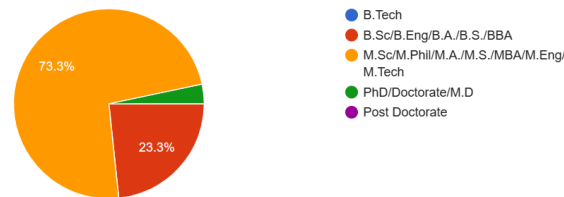


Figure 1: Highest academic qualification

stakeholders and depending on professional opinion [8]. By analyzing the duties, contributions, and commitments of stakeholders, one can better understand their interests and power relations, which makes coalitions and partnerships that support project success possible [9]. We will look at many points of view on these issues and offer original fixes that work inside the DBB framework. Various studies underscore the importance of stakeholder engagement in construction projects, emphasizing its positive influence on key success factors such as cost, schedule, and quality [1] [2]. However, much of the existing literature primarily focuses on collaborative delivery methods like Integrated Project Delivery (IPD), leaving a gap in research specifically addressing stakeholder management within the Design-Bid-Build (DBB) framework [3]. Challenges related to stakeholder communication and conflicting interests in DBB contracts have been acknowledged [4]. While some studies suggest Building Information Modeling (BIM) to enhance stakeholder collaboration, comprehensive analysis of unconventional solutions for DBB stakeholder management remains limited [5]. A recent study highlights the importance of integrating advanced stakeholder management practices to address the dynamic challenges in modern construction projects (Doe, 2024). This paper aims to fill this void by providing a targeted examination of stakeholder management challenges in DBB projects and proposing innovative solutions tailored to this framework. Effective stakeholder engagement is crucial for project success, facilitating sustainable development and addressing complex socioeconomic interactions [6]. Stakeholders, whether internal or external, play pivotal roles in project outcomes, necessitating careful analysis and communication to manage their influence and expectations [7]. We will explore unique perspectives on these challenges and propose innovative solutions that can be applied within the DBB framework. This study uniquely addresses stakeholder management within the Design-Bid-Build (DBB) framework, which has been under-researched. By focusing on early stakeholder involvement and continuous needs assessment, the research provides novel strategies to improve project outcomes in DBB projects. This work contributes significantly to the field of project management by offering practical solutions to enhance stakeholder engagement and project success. Existing literature focuses mainly on collaborative delivery methods like Integrated Project Delivery (IPD), leaving a gap in research on stakeholder management in the Design-Bid-Build (DBB) framework. This study addresses this gap by exploring DBB-specific challenges and proposing solutions, emphasizing early stakeholder involvement and ongoing needs assessment. Recent studies highlight the significance of stakeholder engagement in construction projects for enhancing value creation and overall project performance. For instance, Landorf (2024) emphasizes the role of early and continuous stakeholder involvement in achieving sustainable project outcomes. Similarly, Nguyen et al. (2024) discuss innovative strategies for managing external stakeholders to mitigate conflicts and improve project delivery.

3 Research Methodology

This study employs a robust mixed-methods approach to thoroughly examine stakeholder management in Design-Bid-Build (DBB) projects, ensuring both depth and relevance in its findings.

1. Expert Consultation: The Delphi Technique was utilized to harness the insights of seasoned experts with 15 to 20 years of experience in project management, engineering, and stakeholder engagement. This structured method involved multiple rounds of consultation to integrate expert opinions into the study design (see Figure 1).

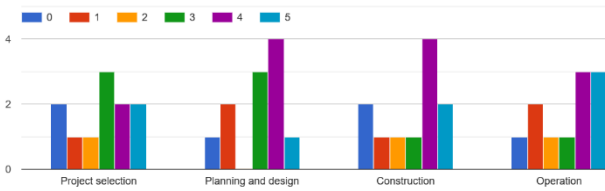


Figure 2: Understanding stakeholder interest and its dynamics.

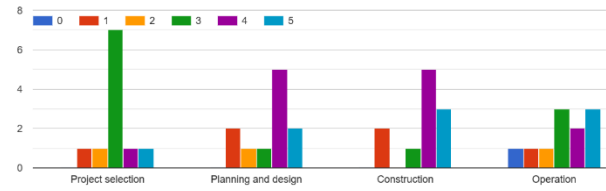


Figure 3: Exploring stakeholders' needs and its dynamics.

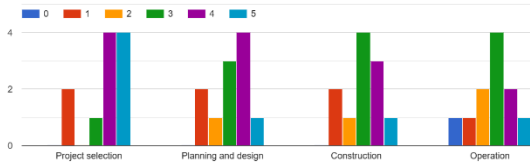


Figure 4: Flexible project organization and its cultural attributes.

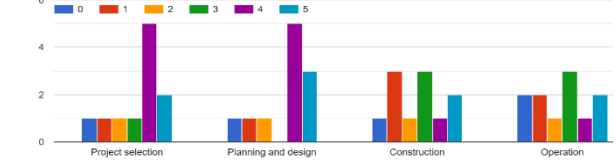


Figure 5: Managing project responsibilities and its dynamics (social, economic, ethical, environmental, ecological, political, legal and cultural).

2. Survey Design: Leveraging the expert insights, a comprehensive online questionnaire was developed using Google Forms. This survey covered critical aspects of stakeholder management, including identification, engagement, and the impact of cultural and organizational factors (see Table 1 for the detailed survey structure).

3. Data Collection: The survey was widely distributed among professionals engaged in DBB projects, collecting valuable data on stakeholder engagement activities and their effectiveness across various project phases.

4. Data Analysis: The collected responses were meticulously analyzed to identify prevalent practices and challenges in stakeholder management within the DBB framework. Advanced statistical methods were applied to evaluate the significance of different factors affecting stakeholder engagement (see Figure 2).

5. Validation: To ensure the accuracy and relevance of the findings, follow-up interviews were conducted with selected experts, providing a layer of validation to the study results.

This detailed and methodical approach ensures a comprehensive understanding of stakeholder dynamics in DBB projects, offering actionable insights to enhance stakeholder management practices effectively.

Table 1: Stakeholder Engagement Activities in Design-Bid-Build (DBB) Project

Project Phase	Stakeholder Engagement Activities
Selection	Early stakeholder involvement - Needs assessment workshops - Stakeholder forums for input
Planning	Regular stakeholder meetings - Incorporating feedback into designs
Construction	Ongoing communication - Site visits and tours - Addressing concerns and conflicts
Operation	Continuous engagement - Feedback mechanisms - Forums for long-term impacts

4 Results and Discussion

The survey results provide a comprehensive overview of stakeholder management in Design-Bid-Build (DBB) projects. The findings reveal that stakeholder interests are most significant during the project selection phase (see Figure 2). Early stakeholder engagement is critical, as it allows project managers to align project goals with stakeholder expectations, facilitating smoother project execution. As the project progresses, the impact of stakeholder interests tends to diminish. During the project selection phase, the importance of needs assessment workshops and stakeholder forums becomes evident. These early engagements help identify potential issues and align project objectives with diverse stakeholder interests, thereby reducing conflicts and delays later in the project. The planning and design phase also benefits significantly from regular stakeholder meetings and incorporating feedback into designs. This continuous engagement ensures that stakeholder needs are consistently addressed, contributing to a more refined and acceptable project design. During the construction phase, ongoing communication through regular meetings, site visits, and addressing concerns



promptly were highlighted as effective strategies for maintaining stakeholder engagement (see Table 1). These activities are vital for managing expectations and ensuring the continuous incorporation of stakeholder feedback.

In the operation phase, continuous stakeholder engagement through feedback mechanisms and forums is essential to address long-term impacts and ensure sustained stakeholder satisfaction (see Figure 3). Interestingly, the survey indicated that social, economic, ethical, environmental, ecological, political, legal, and cultural (SEEEEEPLL) responsibilities have a lesser impact on stakeholder engagement across the project lifecycle (see Figure 4). Survey findings show that SEEEEEPLL duties are not seen to have much of an influence on the project lifetime (see Figure 5). These results provide important new information for raising stakeholder management in DBB initiatives. The little effect that SEEEEEPLL duties are shown to have implies that stakeholders need to be made more aware of them. Project success may be much influenced by the efficient management of various (social, environmental, ethical, etc.) elements. This suggests a need for increased awareness and integration of SEEEEEPLL considerations in stakeholder management practices. The mixed responses on project organization and cultural characteristics indicate a need for greater flexibility in project structures to accommodate diverse stakeholder needs. Promoting cultural awareness within project teams can improve stakeholder interactions and contribute to project success. Follow-up interviews with experts validated the survey findings, reinforcing the importance of early engagement, continuous communication, and flexible project structures. These practices are essential for effective stakeholder management and successful project outcomes in the DBB framework. By expanding on these key findings, the paper provides a comprehensive analysis of stakeholder management in DBB projects, offering practical insights and recommendations for improving stakeholder engagement practices. The data analysis in this study is primarily explained through detailed charts and figures rather than tables. While tables are useful, the use of charts and figures ensures complex information is communicated more effectively.

5 Practical Implementation

To address this diversity, we provide a strategic approach to managing stakeholders that emphasizes early involvement, incorporates ongoing evaluation of stakeholder demands throughout the duration of the project, and promotes flexible project structures that consider cultural settings. An enhanced and sustainable strategy for achieving project success may be achieved by increasing the understanding and commitment of all project participants towards their SEEEEEPLL responsibilities. DBB project teams may use stakeholder participation to enhance the groundwork for a victorious project delivery and project results.

6 Conclusion

This research using multiple methods looked at stakeholder management procedures in DBB projects. The results confirm earlier studies on the value of early stakeholder involvement, especially in the process of choosing a project. Ongoing needs assessment, project organization flexibility, and knowledge of SEEEEEPLL concerns are among the areas where the study also points up room for development.

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