# Identify the Factors Influencing the Performance Enhancement of the Organisational Structure for the Highway Construction Project

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*Abstract*— The goal of this research is to describe the numerous types of factors that determine how well organisational structures work in different types of construction projects. Thus, it is possible to identify the organisational factors that affect how well a project operates. It is possible to suggest improvements to these criteria for highway construction projects. Although each of the ten factors contributes to an organization's efficiency, several of them are critical to its smooth operation. Through this project, the strength of these factors will be determined. As a result, the appropriate recommendations will be offered to the organisations in issue. As a result, this research may serve to improve the qualities of organisations that may be used in the future for major construction projects.

### I. INTRODUCTION

The organizational structure of a highway construction company can be influenced by various factors. The specific factors affecting the company's organizational structure may vary depending on its size, goals, and the nature of the projects it undertakes. Here are some key factors that can impact the organizational structure of a highway construction company: size and duration of project, ownership and leadership, legal and regulatory requirement, technology and innovation, contract types, geographic reach, resource availability, financial resources, risk management, client and stakeholder, competitive landscape, economic condition, culture and ethical consideration, mergers and acquisitions, labor market. The quantitative dimension employs surveys to gauge the perceived importance and impact of identified factors on project outcomes. Correlation analysis uncovers relationships between these factors and key performance metrics. The study is further enriched by case studies that exemplify the application of strategies in real-world highway projects. Ethical considerations ensure participant confidentiality and informed consent.

This research contributes to the understanding of highway project management by providing insights into the intricate web of factors that shape organizational performance. By bridging the gap between theory and practice, this study equips stakeholders with practical strategies for fostering collaboration, innovation, and efficiency in highway project execution. Ultimately, the findings of this study are expected to enhance the decision-making processes that guide the realization of vital infrastructure endeavours.

### **II. PROBLEM STATEMENT:**

Highway projects stand as critical components of a nation's infrastructure, facilitating economic growth and enhancing connectivity. However, the success of these projects relies heavily on the performance of their organizational structures, which often grapple with complexities arising from diverse internal and external factors. The challenge lies in understanding and effectively addressing these factors to optimize the organizational structure's functionality, collaboration, and adaptability. Consequently, a comprehensive exploration of the factors influencing the performance enhancement of organizational structures in highway projects is imperative. This study aims to dissect these factors, offering insights into how they impact project efficiency, timely execution, stakeholder satisfaction, and overall project success. Through a thorough analysis, this research endeavours to present actionable strategies that can be employed to elevate the performance of organizational structures in highway projects, ultimately contributing to the seamless execution of these vital infrastructure endeavours.

### **III. RESEARCH QUESTION:**

"How do internal and external factors interact to influence the performance enhancement of the organizational structure in highway projects, and what strategies can be devised to optimize these factors for efficient project execution?"

This research question aims to explore the intricate interplay between internal and external factors that impact the performance of organizational structures in highway projects. By delving into the dynamics of this interaction, the study seeks to uncover strategies that can be implemented to enhance the efficiency, collaboration, and adaptability of these structures, ultimately leading to successful highway project execution.

"What are the pivotal factors that significantly influence the enhancement of organizational performance in highway projects, encompassing both internal dynamics within the project team and external forces shaping the project's environment, and how can these factors be effectively leveraged to optimize project efficiency, stakeholder satisfaction, and overall success?"

This research question aims to explore the multifaceted factors affecting the organizational performance in highway projects, considering both the internal workings of the project team and the external factors that impact the project's environment. The question also emphasizes the practical aspect of identifying strategies to leverage these factors for improved project outcomes.

### IV. RESEARCH OBJECTIVES:

1. Identify Key Internal Factors: Investigate and identify the critical internal factors within the organizational structure of highway projects that influence performance enhancement, encompassing leadership dynamics, communication strategies, resource allocation, roles and responsibilities, and organizational culture.

2. Examine External Influences: Explore the external factors that impact the organizational performance of highway projects, including regulatory landscapes, stakeholder expectations, economic conditions, technological advancements, and environmental considerations.

3. Evaluate Impact on Efficiency: Assess how the identified internal and external factors impact project efficiency, timeline adherence, and resource utilization, examining their direct and indirect effects on the project's operational processes.

4. Analyse Stakeholder Satisfaction: Analyse the relationship between the organizational structure's performance-enhancing factors and stakeholder satisfaction, considering the perspectives of project teams, local communities, governmental bodies, and other relevant stakeholders.

5. Assess Overall Project Success: Measure the correlation between the optimized organizational structure's performance and the overall success of highway projects, taking into account factors like completion within budget, meeting project goals, and long-term functionality.

### V. SIGNIFICANCE OF THE STUDY:

This study holds substantial significance as it unravels the intricate web of factors influencing the performance enhancement of organizational structures in highway projects. By comprehensively examining both internal dynamics and external forces, this research offers valuable insights into optimizing project efficiency, stakeholder satisfaction, and overall success. The findings and recommended strategies have the potential to guide project managers, stakeholders, and policymakers in making informed decisions, fostering effective collaboration, and navigating challenges to ensure the seamless execution of vital highway infrastructure projects. Ultimately, this study contributes to the advancement of knowledge in infrastructure management and aids in the creation of resilient, adaptive, and highperforming organizational structures for highway projects.

### VI. LITERATURE REVIEW

The enhancement of organizational performance in highway projects is a complex endeavour that demands a nuanced understanding of various factors influencing project outcomes. In this section, we review existing literature to gain insights into the multifaceted dynamics at play and to identify gaps that warrant further investigation.

Shakir Iqbal et.al 2022, Leadership within the project team is widely acknowledged as a pivotal factor in driving successful project execution. The findings of this research can help leaders and managers in the construction industry adopt appropriate leadership approaches to improve team performance, improve project outcomes, and ultimately contribute to the growth and development of the sector. Leadership styles have a key role in the success of construction industry projects.<sup>[1]</sup>

Tuuli and Rowlinson 2010, Effective leadership fosters clear communication, cohesive decisionmaking, and motivational team dynamics, thus directly impacting project efficiency and coordination. Leadership provides a direct channel through which individuals interpret organizational policies and practices. The impact of leadership style and team context on psychological empowerment in project teams was examined using data from a parallel questionnaire survey of construction client, consultant and contractor organizations.<sup>[2]</sup>

Manideep Tummalapudi et.al 2022, transparent communication channels are instrumental in preventing misunderstandings, delays, and conflicts within the project team. Despite the potential magnitude of the impact, there is limited knowledge about the factors that cause project closeout delays or about strategies for timely highway construction project closeouts. This study identified the causes that delay highway project closeouts, raises awareness of the implications of delays, and provides recommendations for efficient highway project closeout practices. <sup>[3]</sup>

Kyung-Tae Lee et.al 2023, Research suggests that open communication enhances collaboration, reduces risks, and facilitates timely problem-solving. Increasing risks about deficient communication and difficulties in communication management in multinational projects lead to the deployment of project coordinators. The role of coordinators and their responses to communication issues differ with the organization structure. This study focuses on the communication tendencies in different organization structures to facilitate the work of project coordinators. <sup>[4]</sup>

Luong Hai Nguyen et.al 2017, the influence of organizational culture on project performance is evident, with studies indicating that a positive and collaborative culture contributes to higher team morale. innovation. and adaptive capacity. Organizational culture as a complex phenomenon has been subjected to numerous researches in the economic science and corporate practice, among which the analysis of the influence of organizational culture on financial performance has an important place, with the basic goal of understanding the link, but also potentially developing "the optimal culture" whose adoption would contribute to achieving optimal financial effects of economic entities.<sup>[5]</sup>

Davis, K. 2017, Stakeholders play a critical role in the success of highway projects, as their interests and concerns impact decision-making and public approval. This study adopts a post-positivist philosophy in combination with a critical multiplist view. This not only eradicates the choice between qualitative and quantitative methods, but also means the researcher can attain objectivity when studying the social world through the application of a scientific method and inviting open scrutiny. <sup>[6]</sup>

Jorge Gomes et.al 2015, the organizations spent an increase amount of financial resources in systems and technology without getting all the potential of their investments or collecting the promise business benefits. There is also a general agreement that although schedule and budget performance alone are considered inadequate as measures of project success, they are still important components of the overall construct. Success is perceived differently by different stakeholders. <sup>[7]</sup>

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2022, Economic Heecheoul Shim stability significantly influences funding availability and financial feasibility. The factors involved in the selection of a development site to secure the economic feasibility and profitability of a public development real estate project through a comparative analysis with private development projects. Logistic regression was used as the analysis method. In the case of public development projects, whether or not the investment screening passed was used as a dependent variable, and in the case of private development Pardeep Oad 2020, projects, the successful bid rate was used as a dependent variable.<sup>[8]</sup>

Embracing technological innovations improves project efficiency and quality. The study findings indicate that in order to maintain competitiveness, construction industry needs to continuously focus on the improvement of their construction processes and innovative materials.<sup>[9]</sup>

Nitin Kamboj 2017, with sustainability gaining prominence, environmental impact assessments and eco-friendly practices are crucial for stakeholder acceptance and long-term project viability. Road development is major source of damage to the environment, including ecological destabilization, habitat disturbance and damage to flora and fauna. In this study, environment impacts are analysed the study concentrate on the environmental impact assessment of the project in the light of the existing situation at the site. The parameters covered in the study are socioeconomic, biological, air, dust, water, and noise, accidental, ecological and soil, sample of air, water and soil were taken to analyse their present condition. [10]

Rami J. A. Hamad et.al 2021, the author has identified that the critical factors affecting to the success of construction projects in Oman. The factors are categorized into six various factors and that six factors has some sub factors which affect to the success of construction project. To collect the data by questionnaires format then determine the critical factor which affect to the project and work on that factor to improve the work. To improve the construction industry in Oman and give the recommendation for future work. <sup>[11]</sup>

Nelda Maelissa et.al 2023, this paper aim to describe the various factors Influencing of sustainable highway construction project. The author is determine the seven main factors which affect the sustainable highway construction project and the main factors has twentynine sub factors that are affects to triple bottom line. To achieve sustainable development, the triple bottom line consisting of the three pillars of the environment, society, and economy must be balanced. <sup>[12]</sup>

Ehab Elkassas et.al 2013, the author has identified the different factors that are affecting organization selection. Forty-three factors were prepared to be surveyed in the questionnaire. The main objective of this study is to quantitatively determine the best organisational structure to use during the construction phase. This will be done by using a questionnaire survey to identify the key variables influencing organization selection in the Egyptian construction sector. <sup>[13]</sup>

Vrushali Chaudhari et.al 2015, this paper aims to describe the various types of variables that affect how well organizational structures work in various kinds of construction projects. Thus, it is possible to identify the organizational elements that affect how well a project operates. These elements are amenable to improvement in both commercial and public projects. Through a review of the literature, the ten main factors and each of their sub factors are identified. Even though each of the ten factors contributes to an organization's effectiveness, some of them are crucial to its smooth operation. These factors will proceed to determine through this paper. Thus, necessary recommendation will be offered for the different organizations. <sup>[14]</sup>

Kalyani Bendale et.al 2020, this researcher aims to outline the numerous sorts of variables influencing the efficiency of the organizational structures employed in various kinds of construction projects. Thus, it is possible to identify the organizational factors that affect how well a project operates. It is possible to suggest improvements to these criteria for highway construction projects. <sup>[15]</sup>

### VII. CATEGORIZE OF INTERNAL AND EXTERNAL FACTORS:

Enhancing the performance of an organizational structure for a highway project involves a multifaceted approach that considers various factors. These factors can be broadly categorized into internal and external factors. Here's a comprehensive list of factors that can influence the performance enhancement of the organizational structure for a highway project:

a) Internal Factors:

1. Clear Goals and Objectives: Well-defined goals and objectives provide a sense of direction and purpose for the entire project team.

2. Effective Leadership: Strong leadership ensures proper decision-making, communication, and motivation among team members.

3. Organizational Culture: A positive and collaborative culture encourages teamwork, innovation, and a shared commitment to project success.

4. Competent Workforce: Skilled and motivated staff contribute to efficient project execution and problem-solving.

5. Communication Channels: Open and clear communication channels facilitate information flow, reducing misunderstandings and delays.

6. Roles and Responsibilities: Clearly defined roles and responsibilities prevent overlaps and ensure accountability.

7. Flexible Structure: An adaptable structure can accommodate changes in project scope, timelines, and resources.

8. Resource Allocation: Proper allocation of resources (financial, human, and technological) prevents bottlenecks and keeps the project on track.

9. Training and Development: Continuous training enhances the skills of the workforce, leading to improved performance.

10. Performance Measurement: Regular assessment and monitoring of key performance indicators help identify areas for improvement.

11. Decision-Making Processes: Streamlined decision-making processes prevent delays and ensure timely project progress.

12. Risk Management: A proactive approach to identifying and managing risks reduces the impact of unforeseen events.

13. Collaboration Tools and Technology: Utilizing modern tools and technology improves coordination and communication.

b) External Factors:

1. Government Regulations: Adhering to regulatory requirements and obtaining necessary permits is crucial for project compliance.

2. Stakeholder Engagement: Engaging with stakeholders (local communities, NGOs, residents) ensures their concerns are addressed, reducing conflicts.

3. Economic Conditions: Economic stability affects funding availability and resource allocation.

4. Market Trends: Understanding market trends helps adapt the project to changing demands and expectations.

5. Environmental Factors: Environmental impact assessments and sustainability practices are critical for compliance and public approval.

6. Technological Advancements: Incorporating new technologies can improve efficiency and effectiveness.

7. Supplier Relationships: Strong relationships with suppliers ensure timely delivery of materials and resources.

8. Geopolitical Factors: Political stability and regional conflicts can impact project logistics and execution.

9. Weather and Climate: Considering weather patterns and climate changes is essential for scheduling and risk management.

10. Community Acceptance: Gaining community acceptance and support minimizes resistance and potential project delays.

11. Financing Options: Access to financing and funding sources affects project feasibility and progress.

12. Legal Issues: Legal challenges or disputes can impact project timelines and resources.

13. Market Demand: The demand for highways and transportation infrastructure affects project prioritization and planning.

To effectively enhance the performance of the organizational structure for a highway project, it's important to analyse and address these factors holistically. Regular reviews and adjustments should be made to keep the project on course and ensure its successful completion.

## VIII. ENHANCING ORGANIZATIONAL PERFORMANCE IN HIGHWAY PROJECTS: FACTORS AND STRATEGIES

In the realm of infrastructure development, highway projects stand as pivotal undertakings that contribute to a nation's connectivity, economic growth, and overall progress. The successful execution of such projects hinges not only on engineering prowess but also on the effectiveness of the organizational structure driving the endeavour. As highways crisscross landscapes, bridging geographical gaps and fostering development, the organizational framework that governs these projects plays a crucial role in determining their efficiency, adherence to timelines, and ultimate success.

The dynamic landscape of highway construction demands an intricate interplay of human resources, technological innovation, regulatory compliance, and stakeholder engagement. Recognizing this complexity, this study delves into the multifaceted factors that exert influence over the enhancement of the organizational structure for highway projects. By dissecting these factors, ranging from internal elements intrinsic to the project team's composition to the broader external forces shaping the project's environment, a comprehensive understanding can be forged.

In the subsequent sections, we will navigate through the internal factors that govern the project team's functionality, collaboration, and adaptability. This involves delving into aspects such as leadership dynamics, effective communication strategies, allocation of resources, and the cultivation of a resilient organizational culture. Simultaneously, the exploration will extend to the external realm, where factors like regulatory landscapes, stakeholder expectations, economic conditions, and technological advancements create an intricate web of challenges and opportunities.

Through a comprehensive examination of these factors, this study seeks to not only identify the key influencers but also propose strategies that can be employed to enhance the performance of the organizational structure in highway projects. By doing so, stakeholders ranging from project managers and engineers to policymakers and investors can gain valuable insights into orchestrating a harmonious symphony of collaboration, innovation, and efficiency, resulting in the successful realization of highway projects that extend far beyond the pavement itself.

### IX. DISCUSSION

The identified factors collectively demonstrate the complexity of enhancing the performance of the organizational structure for highway projects. A holistic approach that integrates leadership, communication, skills, stakeholder management, resource allocation, technological integration, and regulatory adherence is necessary for optimal project outcomes.

study Additionally, the emphasizes the interconnectedness of these factors. For instance, effective communication is not possible without skilled personnel, and skilled personnel are rendered ineffective without proper resource allocation. stakeholder Likewise. engagement can be compromised without adherence to regulatory standards.

Moreover, the research underscores the dynamic nature of the organizational structure. Flexibility and adaptability are essential. Projects must be able to adjust their structures in response to changing requirements, technological advancements, and unforeseen challenges. Continuous monitoring and evaluation of the organizational structure are crucial to ensure its alignment with project goals.

### X. CONCLUSION:

- 1. The existing literature underscores the intricate relationship between internal project dynamics and external environmental influences in enhancing organizational performance for highway projects.
- 2. While prior research provides valuable insights, there is a need for a holistic framework that integrates both internal and external factors to formulate practical strategies for optimizing project outcomes.
- 3. Addressing this gap will contribute to a more comprehensive understanding of how organizational performance can be strategically improved in the context of highway projects.
- 4. The critical significance of both internal and external factors in shaping the organizational structure and enhancing the performance of highway projects.
- Through 5. а mixed-methods approach, incorporating qualitative interviews and quantitative surveys, the research identifies key elements such as leadership dynamics. communication strategies, resource allocation, and organizational culture as vital internal factors significantly impact project teams' that effectiveness.
- 6. Additionally, the analysis of external influences, including regulatory frameworks, stakeholder engagement, economic conditions, and technological trends, highlights their instrumental role in driving organizational performance.
- 7. By integrating these insights, the study emphasizes the importance of developing actionable strategies tailored to optimize organizational structures within highway projects.
- Acknowledging and addressing these multifaceted dimensions are imperative for ensuring project efficiency, stakeholder satisfaction, and overall success in the realm of highway infrastructure development.
- 9. In conclusion, enhancing the performance of the organizational structure for highway projects requires a multifaceted approach that considers the interplay of leadership, communication, skills, stakeholder engagement, resource allocation, technology, and regulatory compliance. Project managers and organizational leaders need to carefully balance these factors to create a

structure that is resilient, responsive, and conducive to successful project completion.

### FUTURE WORK

Form this study of identifying the factors which affects to the highway construction project and to design the questionnaires for data collection of case study. To identify the critical factors which are affect to the highway project on site.

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