International Journal of Scientific Research in Engineering and Management (IJSREM)
Volume: 08 Issue: 01 | January - 2024 SJIF Rating: 8.176 ISSN: 2582-3930

LITERATURE REVIEW ON DEVELOPMENT OF PROJECT PERFORMANCE AND CHARACTERISTICS IN CONSTRUCTION INDUSTRIES

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ABSTRACT

The construction sector is always looking for efficient project management techniques. The purpose of this literature review is to build a solid project performance by carefully examining the inherent characteristics of construction projects. This review integrates various project elements, such as project scope, risk management, stakeholder engagement, resource allocation, and technological integration, which highlight the multifaceted nature of construction activities. A factual overview of certain key trends and findings from the research literature that relate to the construction sector encounters difficulties in achieving project success. This abstract also states that an in-depth investigation of the project performance is changing in the construction industry and the characteristics that go along with it. The paper investigates the complex relationship between project success criteria and quality assurance, sustainability, stakeholder engagement, risk management, cost control, scheduling, and industry reports and case studies. This paper provides an in-depth analysis of construction project**.**

Keywords: Construction, Project Performance, Characteristics, Stakeholder Dynamics, Technology, Success Criteria, Sustainability, Risk Management.

1. INTRODUCTION

In construction sector, developing a strong project performance model in the construction industry necessitates a thorough examination of many project aspects. The areas of client, project, consultant, project environment, project team leaders, project processes, and project management procedures, Christopher Ngacho (2015) organised the main factors for construction. Many studies of critical project success factors have resulted in the development of a number of metrics to assess project performance. Project complexity factors were classified into five major categories: time/schedule, scope, cost/budget, quality, resources, and risk. 2017 (Ehsan and Mirza). To improve construction project

performance, the cost, time, quality, and safety are listed, and the project characteristics are identified through journal review. The paper provides a critical review of the performance concept in the construction field, including project performance characteristics and the integration of performance-based building activities into project phases. The external environment, which includes the project site, climate, organisation, social, and cultural factors, rivals, users, and anything else that impacts the project's success, all have an impact on the way a construction project is managed Prachi Vinod Ingle (2020). the relationship between the project attributes indicated and their impact on project performance (Chen 2020). the project's external conditions Prachi Vinod Ingle (2020) identifies the project's external elements, which include the project's type, political environment, and economic conditions. Fariz Gilang (2021) determined that the project's performance in terms of people, money, time, the environment, safety, quality, client satisfaction, and communication was satisfactory. To capture total project performance, the "Iron Triangle" of time, cost, and quality has been the primary factor in evaluating the success of a construction project. Cost and quality are two important project success factors that are dependent on the project execution system Chen (2021). The project environment encompasses economic, social, and physical aspects associated with industry and technology, as mentioned by Fariz (2021). The proponents of additional measures of performance have considered safety of the project site as an important aspect of construction project performance according to Mohammed Alsailani (2022).

2. REVIEW OF PROJECT CHARACTERISTICS FACTORS

According to Ali (2017), to develop a workable model for evaluating the effectiveness of the Health, Safety, and Environment Management System (HSEMS) used by construction companies. The evaluation's conclusions can be applied to the selection of contractors for upcoming projects. Mohamed (2018) the development of evaluation assessment models for overall construction project performance in Egypt, taking into account organisation size and project type, it makes no mention of analysing project characteristics in the construction sector. The construction industry is a significant contributor to the Egyptian economy. Key performance indicators (KPIs) are useful for measuring and improving project performance. Shoeb syed (2019) stated that the Development of project performance index for construction projects. The factors influencing project performance and their weights. this research aims to develop a project performance index for capital intensive construction projects by analysing critical success factors and using regression techniques. KyuMan Cho A (2019**)** states the insights into the relationship between project characteristics and project performance in construction projects, highlighting specific characteristics that have a significant impact on performance, and introduced project characteristics that should be considered for a successful project's execution**.** Husam (2020) stated the development of an impact-on-performance

index (IPI) for construction projects in Malaysia to identify the measurements, factors, and indicators that can be used to assess the performance of construction companies in the country. the measurement, factors, and indicators of construction companies' performance. Husam (2020) stated the development of an impact-on-performance index (IPI) for construction projects in Malaysia to identify the measurements, factors, and indicators that can be used to assess the performance of construction companies in the country. the measurement, factors, and indicators of construction companies' performance.H. ALwaer (2020) the particular key performance indicators (KPIs) for intelligent buildings. the main concerns surrounding sustainable intelligent buildings, create a conceptual model for choosing relevant KPIs, assess stakeholders' opinions and values regarding chosen KPIs, and create a new model for gauging sustainability for sustainable intelligent buildings. Shohreh Moradi (2021) the contribution to a better understanding of construction performance management and provides valuable insights into key performance indicators and their relationships. the systematic analysis of construction performance management and identify key performance indicators (KPIs). Jihuan (2022) the construction project management performance evaluation and proposes a new method to evaluate knowledge management performance. Paper focuses on performance evaluation of construction project management. Construction project management performance evaluation is important. A new method to evaluate knowledge management performance

3. REVIEW OF CHALLENGES IN MODELLING PROJECT PERFORMANCE

Jui-Sheng (2014) outlined the PMBOK works well in Taiwan's construction sector. It examines the connection between project success and PMBOK techniques, tools, and skills. Project performance is strongly influenced by PMBOK knowledge. A project's success is determined by variables other than price, schedule, and quality. the creation of a project performance model by examining project features in the building industry. Christopher Ngacho (2015) analysed the overall relationship between project performance and project characteristics in construction projects. The paper employs the factor analysis method and a structural equation model (SEM) to establish the causal relationship between project characteristics and project performance. Goodenough (2017) discussed the stakeholder management performance attributes in construction projects, such as performance targets, success determinants, and performance indicators. It also emphasises the need of monitoring stakeholder and organisational satisfaction in the delivery of building projects to ensure project success. The report also emphasises the significance of collaborative stakeholder management in the development of social capital. Chen (2022) Identified the critical success factors (CSFs) of construction projects and explore the interrelationships among these factors using a structural equation model (SEM) The goal is to help project managers focus on key factors, make reasonable resource allocations, and ultimately contribute to the success of construction projects. Du Y. Kim (2019) using the Structural Equation Model (SEM) to predict the success of uncertain global construction

projects. Compared to artificial neural networks and multiple regression analysis, SEM exhibits a more accurate performance prediction because of its innate ability to methodically and practically account for a wide range of risk factors. Due to the small sample size of the study, a general model was developed that can be applied to a wide range of international projects. Khaliq (2022) performance management for an infrastructure project by analysing data obtained from the construction sector., in numerous infrastructure projects, significant contractor losses are reported, along with project completion delays and subpar cost and time performance. This creates a performance management model for infrastructure projects. literature review identifies issues related to performance management in infrastructure projects. The review informs the development of a performance management model. Hiba (2022) the development of the Project Overall Performance (POP) model, which evaluates the performance of construction projects based on quantitative performance metrics. Development of a data-based construction project performance model. Evaluates performance from contractors' perspective using quantitative metrics Development, mathematical formulation, and validation of the POP model. Correlation of POP with projects' overhead and profit (O&P) Mohammed Alsailani (2022) the performance evaluation of construction project management. Construction enterprise projects as the research object ideal interval method for performance evaluation. the construction project management performance evaluation and proposes a new method to evaluate knowledge management performance. Chen (2022) identifies the critical success factors (CSFs) of construction projects and explore the interrelationships among these factors using a structural equation model (SEM) The goal is to help project managers focus on key factors, make reasonable resource allocations, and ultimately contribute to the success of construction projects.

4. REVIEW OF KEY COMPONENTS OF PROJECT PERFORMANCE MODELS

Awad (2014) created the project performance model through analysis of project characteristics in the construction industry is particularly mentioned in the project quarterback rating (PQR), a new performance metric, is presented in this paper. PQR evaluates construction projects' overall performance quantitatively from the contractor's point of view. Prior research has contrasted several projects according to a range of project characteristics. Critical success factors and project performance evaluation were the subjects of some studies. Rrmmk, Wadugodapitiya YG (2016) the Performance measurement research is interested in the evaluation of building projects. The conventional understanding of construction performance measurement is constrained. The analytical hierarchy process (AHP) and balanced scorecard (BSC) tools are integrated in this paper. Sung et al. (2017) quantifying the association between project management methods and construction project cost performance. A variety of analytic procedures and methodologies are included in the analysis method, including data measurement and transformation, contingency table analysis, logistic regression, and a composite index. This information will assist practitioners in improving cost performance

in the most effective and efficient manner possible. Nbsp Tarun (2017) improved performance in the construction industry. It reviews existing performance measurement frameworks and proposes recommendations. Review of existing performance measurement frameworks in construction industry Proposal of a method for scoring performance indicators for total building performance. Dziekonski (2017) the competency model for construction project managers in Poland and applied statistical techniques to validate it. paper is to develop a model of Polish construction project managers' competencies. It is advised that studies be conducted to expand and enhance the suggested model by incorporating the relationships listed. Felipe (2019) the performance improvement in construction industry. Criticism of validity of Iron Triangle as performance measure Combined qualitative and quantitative approach Comprehensive literature review and statistical analysis. the analyses performance indicators in the construction industry to determine a final rank of key performance indicators (KPIs). Kasun (2021) explained the construction project's success depends on choosing a better performing contractor throughout the bidding process. This increases the model's usability and attractiveness. Several categories of measures of performance (MoP) and related critical measures of performance (CMop) were first identified by a thorough literature research. Prachi (2023) the Limited research on performance measurement in construction sector Development of comprehensive performance assessment model the paper develops a comprehensive project performance model, Modified Project Quarter Back Rating (MPQR), for the construction sector. The paper focuses on the development of a comprehensive performance measurement (PM) model, called Modified Project Quarter Back Rating (MPQR), for assessing the project success of Indian construction projects. The model considers both financial and non-financial areas for performance assessment, providing a holistic view of project performance.

5. REVIEW OF PROJECT PERFORMANCE MANAGEMENT

Hee Sung (2018) the range of Performance Measurement Systems (PMS) are designed to give sound decision-making to owners and contractors by finding Best Management Practices (BMP). The majority of them are ineffectively related to project parameters (such as project type, owner need, and/or project circumstances. Prachi (2019) explored on the development of a modified Project Quarter Back Rating (PQR) model to assess the performance of construction projects in the Indian construction industry focuses on developing a Modified Project Quarter Back Rating (PQR) model for the Indian construction industry. Machfudiyanto (2019) identified critical success factors for improving safety culture on construction projects in Indonesia leadership, behavioral safety, safety planning, individual capability, and report and evaluation. The researchers aim to identify the success factors of safety work on construction projects, determine the Critical Success Factors that mostly influence safety culture, and provide an improved method of implementing the safety program as a shaper of safety culture based on the success factors of

safety performance. Michael W (2019) to compare the performance of different Project Delivery Systems (PDSs) in terms of cost, schedule, quality, communication, and change management. Monika (2020) i the impact of political, environmental, social, technological, economical, and legal (PESTEL) factors on project performance indicators (PPIs) in the South African construction industry. The study found that rework, poor planning, and inadequate training are closely associated with poor performance of PPIs, and addressing these areas of concern could lead to improved performance and satisfaction of construction stakeholders. Roman Track (2020) examined the social network analysis and centrality measures, project managers can gain insight into the relationships and interactions among team members in construction projects. Social network analysis was used to analyse the communication network between project participants for the construction of residential buildings. The centrality measures calculation and analysis for those involved in the construction project delivery is the aim of this work. Rayan Assaad (2020) discussed the construction sector by offering a cutting-edge model that enhances the management, analysis, prediction, and control of project performance based on a customized evaluation of risk indicators. The developed framework adds to the body of knowledge by offering a novel model that enhances project performance through analysis, control, prediction, and decision-making based on a customized evaluation of various risk indicators. Francielle (2020) the great deal of research on performance-based building (PBB) and construction project performance (CPP) has been done in the past ten years, experts and researchers are still at odds over how to incorporate PBB-related activities into the design, planning, construction, and operation phases of construction projects.

6. TEXT DATA IN VOS VIEWER

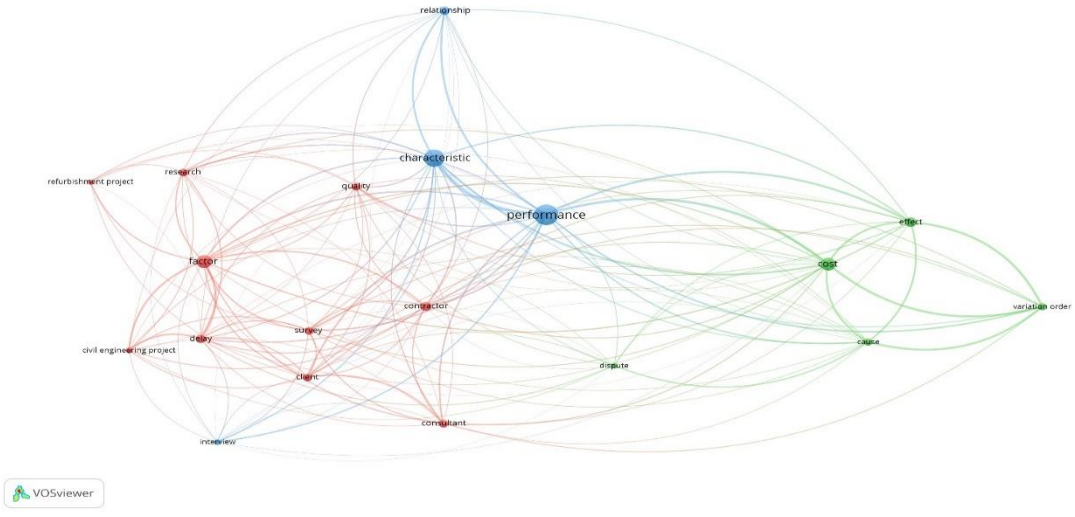

Figure 1 Text data **Source: VOS viewers**

In the construction industry, the VOS tool is a valuable resource as it provides a brief assessment of project performance and attributes. To extract important insights from project-related data, it makes use of advanced text analytics. By providing an overview of project milestones, difficulties, and accomplishments, VOS speeds up decision-making. Effectively monitoring project schedules, financial compliance, and resource usage. The real-time updates provided by VOS guarantee that stakeholders remain up to date on project dynamics, encouraging preventative decision-making. Its complex algorithms help with project planning and risk management by identifying patterns and trends. The tool facilitates data-driven conversations on performance metrics, which improves collaboration between project teams. All things considered, VOS simplifies project analysis and maximizes results, making it a useful tool in the construction industry.

CONCLUSION:

The literature review on project performance and characteristics in the construction industry, in conclusion, emphasises the complexity of factors affecting project outcomes. Successful project management, stakeholder participation, and technology integration are identified as key variables. The body of research emphasises how crucial it is to manage risk, communicate clearly, and be flexible when handling the intricacies of building projects. The results also highlight the significance of industry standards compliance, competent labour, and strong leadership in attaining the best possible project performance. An increasing trend for improving the efficiency of construction projects is the integration of modern technologies with sustainable practices. Ultimately, the review of the literature highlights the necessity of a comprehensive strategy that takes into account a variety of factors in order to guarantee effective project delivery in the demanding and dynamic construction industry.

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