



Effectiveness of Quality Management System in Construction Projects

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(Received 01 January 2023, Revised 18 February 2023, Accepted 28 February 2023)

(Published by Research Trend, Website: www.researchtrend.net)

ABSTRACT: The Performance Management System (PMS) in the building and construction industry relates to the planning stage, product testing, and control and quality improvement. The successful completion of construction projects within the limits of good standards, predetermined timelines, and associated costs is the main objective of the building sector. Construction businesses should provide a flexible and supportive overall organizational structure that promotes the progress of quality management in all areas of the business, according to the QMS research. In the most recent study, a survey is done by speaking with those who have been involved. The investor, a project financial analyst, a construction business, as well as various contractors and supply chain partners, were among the participants in the project. The authors developed questionnaires for construction buyers, advisers, and contractors evaluating the quality aspects of infrastructure projects. To write this paper, data from survey interviews with builders and contractors were collected.

Keywords: Quality Improvement, Materials Management, Purchasing, Benefits Management.

I. INTRODUCTION

To establish themselves in the developing global markets, particularly those that are from emerging countries, businesses from all over the world are working to achieve internationally recognized production standards. Unfortunately, the construction industry has lagged behind many other industries in implementing total quality management (TQM), a practice that delivers expertise in customer experience through continuous innovation to products, processes, or offerings. The main cause of the delay has always been the perception that TQM only applies to the industrial and service sectors, not to construction projects.

Quality management system (QMS) is a structured approach to achieving quality in products or services by using various tools, techniques, and processes. It is a vital component of any successful construction project as it ensures that the project meets the required quality standards, specifications, and customer requirements. The QMS is a systematic way of managing the quality of the project from the design phase to the completion phase.

Construction projects are complex and require careful planning and execution to ensure that they are completed on time, within budget, and to the desired quality standards. In the construction industry, QMS is used to manage the quality of construction projects by identifying, controlling, and monitoring the various processes involved in the project. The effectiveness of the QMS in

construction projects is essential in ensuring that the project is completed to the required quality standards.

The construction industry has recognized the importance of QMS in achieving quality in construction projects. Many construction companies have implemented QMS in their projects to improve quality, reduce costs, and increase customer satisfaction. The effectiveness of QMS in construction projects has been widely researched and documented in the literature.

This paper main objective is to look into how Pakistan's Lahore successfully implemented building activities. The real estate market is seen as an important sector in the contemporary marketplace due to the advancement in building projects that are going place in general and in Lahore in particular. To look into current quality management procedures and supervisors' perspectives of elements required for successful quality management, a survey of general contractors was examined.

This study examines organizational planning for continuous improvement, excellence in organizational development, and difficulties related to infrastructure projects in the growth of the Indian construction industry. A somewhat extensive questionnaire method with project management professionals was used for the study.

According to the study in the paper, there are concerns with quality management execution that warrant evaluation and further research, and the state of quality management in building projects has to be improved. The paper provides information on the quality's present state.

II. LITERATURE REVIEW

A Quality Management System (QMS) for Construction Sites was recommended by Raji Al-Ani *et al.* (2011) to improve professional interaction and quality control at various organizational levels. According to the report, the non-use of wood goods and poor fabrication techniques are the two main reasons for the building sector's lower efficiency. He stated that the introduction of total quality management was misunderstood [1].

According to James Harrington *et al.* (2012), the performance and efficiency difficulties are described, and the main focus of this research is on the necessity for quality management to reduce losses in the building project. The author states that there hasn't been enough research on new methods of quality management [2].

Performance management, according to Abukar Warsame (2013), is the process of offering the highest level of standard for a building project. Finding factors that affect quality control for professionals working on construction projects was the main goal. The development of significant transit projects uses a variety of procurement methods [3].

The use of the quality management workflow in the field of ship construction was the focus of Dasuki and Razalli (2013), and the qualitative methodology was selected as the most pertinent research approach among those that might be used for this study. The main objective was to successfully implement a management system at the shipbuilding facility [4].

According to Amit A. Mahadik *et al.* (2014), quality management is a managerial strategy that focuses on the main objectives of the work, which are to maintain and improve performance standards and satisfy customers. This study investigated the need for and benefits of universal quality assurance adoption in the building project using a questionnaire survey [5].

Total quality management (TQM) and the degree of customer engagement in project management techniques in each of Ghana's construction industries were shown to be related, according to research by Elvis Attakora-Amaniampong *et al.* (2014). Both hypothetical assessments of 50 appellants based on content analysis and an investigation using quizzes were included in the study [6].

In Mane and Patil (2015) emphasized the significance of quality control in construction projects. According to the author, a Quality Management System (QMS) can be applied regardless of the size of the project or the firm. An in-depth discussion is given regarding the importance of a five-point scale for rating attributes. Discussions with those involved in the project were then held in the next step [7].

III. AIM AND OBJECTIVES

Assuring that steps are being made to meet high-quality requirements for extremely well organized and structured product lines is the main goal of quality management.

- Standardization of contentment in service agreements
- The time spent during construction.
- Increasing customer satisfaction
- Employment Views and Participation
- Avoiding Problems and Disputes

- Results driven by purpose.

IV. METHODOLOGY

Executives from construction companies will answer detailed, semi-structured questions as part of this investigation. Further research on the adoption and utility of quality management systems in the building and construction sector would employ the same methodology. The study's objectives, which primarily center on identifying the opinions and experiences of business professionals, are considered as being appropriate for such a strategy. The team members will gather the sample components at their convenience through close relationships and recommendations from relatives as part of a practical sampling approach that will be used to choose the specimen. Yet, precise standards have been set up to increase credibility. The respondents had to be currently employed in construction projects, and the collection had to be based on buildings that were accredited by the Pakistan Public Works Department. We were able to recruit several participants despite having trouble getting the go-ahead from contractors to be questioned. Each chat lasted for almost an hour and a half.

VI. FINDINGS & DISCUSSIONS

Executives from construction companies respond in-depth, semi-structured questions as part of the investigation, as specified in the research methodology. According to respondents' comments, check lists, followed by flow charts, pareto analyses, check sheets, statistical analysis, histograms, control charts, and scatter diagrams, are the most crucial quality tools used at construction sites.

According to respondents' responses, maintaining construction drawings in order and adhering to a regular timetable are crucial components of quality control during the planning and designing stages of building projects.

The analysis of questions reveals that poor planning, inadequate training, poor attitudes, abdication of responsibility, competitive markets, a lack of leadership for quality, a lack of effective measurement of quality improvement, a lack of management commitment, resistance from the workforce, and a deficiency of c are the main barriers to project team working with respect to quality.

Based on customer happiness, stakeholder satisfaction, competitive markets, management commitment, and client contentment, the importance of a quality management system for construction projects is determined.

Additionally, respondents believe in the adoption of a quality management plan on-site and place a high value on test results from suppliers.

V. CONCLUSIONS

Following the completion of the report's examination and recommendations for improving productivity in building projects, the following can be inferred:

- *For elements creating delays in construction projects:* Mysterious dirt requires site administration functions, and in some situations, the capacity to make judgment calls is constrained.

- *Internal stakeholders' misunderstanding of a quality factor*: poor management, a lack of transparency, and miscommunication between human and subcontractor labor.
- *Factors involving labor and equipment*: the use of old or inadequate development technologies, improper workplace palletization, and the selection of staff with insufficient experience.
- *In the absence of leadership*: Inadequate distribution and logistics, inadequate design standards, minimal budgets, implementation errors, and dishonest subcontractor practices are all examples of inefficient site monitoring systems.
- *Causes for improper material handling in projects*: improper material supply and origin study, excessive demand for a product above allowed standards, and inappropriate pre-development analysis on the component.
- *With relation to the location*: Manage resources when raw material consumption, inadequate site storage, organizationally imposed restrictions, on-site theft, unforeseen site conditions, and the existence of unnecessary items are present.
- *To affect the cost-effectiveness of particular construction projects*: Absence of competence and experience were also acknowledged as qualifiers; nevertheless, the presence of a necessary project that is robust and resilient to socio-political and meteorological conditions, as well as fierce competition during the tendering stage, would be helpful.

Acknowledgement. The researchers would like to thank all parties who have given their support in completing this study, especially the respondents. We also would like to express gratitude to the Pakistan Public

works Department, Civil Engineering Department, Quest Nawabshah Faculty of Economics, UET Taxila, that has help this study.

Conflict of Interest. None.

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How to cite this article: Muhammad Waheed and Shahid Khan (2023). Effectiveness of Quality Management System in Construction Projects. *International Journal on Emerging Technologies*, 14(1): 09–11.