ABSTRACT

Construction industry has been a conduit of growth for an economy, and India being the second fastest growing economy in the world, has witnessed a phenomenal growth in this sector, particularly in the past decade. About 11% of India’s GDP is in construction industry and progress of this sector is vital to the overall growth of the country. Having realized its importance, a lot of research thrust has been directed particularly to TQM implementation as it has bearing on the success of the industry.

Purpose - This research focused on the Critical Success Factors (CSFs) of TQM implementation in the construction industry in India. The purpose of the study was to identify the CSFs among the various factors used across the industries and choose the most relevant ones which are applicable to the research context. Having identified the CSFs the research further explored the empirical evidence to identify the significance of influence of these factors on the organizational performance aspects of the industry when operational performance acts as an intervening or mediating variable. The research purpose was also to identify the problems faced by the knowledge workers of the construction industry and develop a framework for TQM implementation.

Design/Methodology/Approach – The concept of meta-analysis was used to screen the CSFs of the study. The approach of this study was both qualitative and quantitative in nature and it basically being an exploratory and ‘ex post facto’ kind of research, the concepts and models evolved as the research made progress both in terms of literature review and field work on construction sites and discussions with the knowledge workers. Semi-structured interviews with the knowledge workers were used to collect the qualitative data and questionnaire with Likert scale was used for collecting the quantitative data. TOPSIS (Technique for Order Preference by Similarity to Ideal Solution), was used in ranking the dimensions of study which is one of the methods used in Multiple Criteria Decision Making (MCDM) for dealing with unstructured problems containing multiple and potentially conflicting objectives. Analytic Hierarchy Process (AHP) has been used to prioritize the relative importance of these CSFs. Factor analyses by Principal Component analysis was used for confirmatory factor analysis and Structural Equation Modelling (SEM) was used for exploratory factor analysis and hypothesis testing using path modelling approach.
**Findings** – Meta-analysis identified Customer management, Top management leadership, People management, Organizational learning, Process management, Continual improvement, Quality information management, and Supplier management as the eight CSFs. Hypothesis testing revealed that out of the eight factors chosen as CSFs only five had significant influence on business performance of the industry as measured through Operational and Organizational performance. Research also revealed that in terms of planning all the three viz., Strategic, Tactical and Operational factors had significant influence on performance in one form or the other. Based on the hypothesis testing results and the information collected during interviews and field study, implications were drawn to improve upon the performance of the TQM in construction industry. An integrated framework for TQM implementation was developed. Problems faced by the employees were also listed.

**Contributions** – This research is a systematic approach to explore into the issues and perspectives of Indian construction industry. This research has resulted in a model for TQM implementation in construction industry in general, and Indian construction industry in particular in terms of eight CSFs which are considered to be the main contributors for Operational and Organisational performance of the industry. The meta-analysis has resulted in the identification of a group of critical factors which need to be satisfied for TQM implementation and this can be used by the future researchers as guidelines for undertaking research in the TQM implementation. The research has contributed a validated and tested metric for measurement of CSFs of TQM implementation in construction industry, which could be used by the future researchers not only in construction industry, but also, in other related industries with little modification, if required.

The hypothesis testing undertaken in this research has revealed the most significant factors among the eight CSFs chosen from a myriad of critical factors which influence TQM implementation. The implications of the study can be made use by the policy makers of the Indian construction industry to enhance the performance of their industries through effective TQM implementation. Also the problems identified in the construction industry in India could be a guiding path in resolving the issues hindering growth of the industry. Finally, the outcome of this research adds immensely to the body of knowledge of TQM literature in construction industry.