

IMPORTANCE OF MANAGEMENT IN IMPROVING THE CONSTRUCTION PRODUCTIVITY

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Abstract - Maintaining the schedule and avoiding cost overruns are critical constraints during the construction project's execution. Since, it involves the project total duration, final cost, resources requirements, and the most important element is managing all these factors. Proper project management can reduce the cost of a project by 30% to 50%. But still, the management approaches are not given proper priority, which enhances the project performance by detailed planning, realistic scheduling, and proper execution of unique projects. This paper discusses the critical role of various management roles and site characteristics in achieving desired productivity. Predicting the methods to maintain productivity throughout the project will benefit the organization in numerous ways. As a result, a model has been developed to demonstrate the critical nature of management performance in project execution. The proposed model offers a simple explanation of overall management performance, which may be useful for competitors at all levels in the industry. The findings indicated that assessing management performance in terms of management control, limitations, organizational roles, resource management, and team efficiency may yield more insightful results. Thereby, this paper can enable a better way of understanding proper project management.

Key Words: Productivity, Management, Project Performance, Site Characteristics, Construction Industry.

1. INTRODUCTION

The construction sector will continue to play a significant role in economic growth. The major success of construction projects is determined by the proper management of time, cost, safety, and quality (Gadekar, 2013). Since construction is a massive industry with many departments and different levels of responsibility. The management plays a pre-dominant role in every phase of the project like pre-construction, construction, and post-construction. The role of management in planning, controlling, organizing, and leading each construction activity determines the project efficiency. Based on the complexity and the buildability of the project, the percentage of productivity gets varied. Where, Liberda et al., (2003) had listed that lack of standard practice or methodology to measure productivity, lack of management skills, legal issues for monitoring of labor

productivity, and lack of pre-project planning are the most common barriers during project execution.

2. MANAGEMENT PERFORMANCE

Since construction involves huge initial funds and multiple stakeholders with complex relations, it requires advanced project management skills (Loosemore et al., 2003). The management practices and principles adopted by the project team, and the proper utilization of resources, are perceived to be essential factors of this complex system (Loosemore et al., 2003). Many project owners will not realize the necessity of management that begins at the project conceptual and planning phases. Kirschenman (1987) stated that the owners of construction projects need to be informed of the potential costs savings that could accrue to their projects if adequate management was performed during the early planning phase of a project. Efficient plans and procedures are needed to improve the efficiency of an organization in the implementation of projects (Demirkesen & Ozorhon, 2017).

Project management refers to the management of the entire project: i.e., the definition of project objectives, a project financial diagnostic, and strategic project management (Kim et al., 2015). Good project management in construction must vigorously pursue the efficient utilization of the resources (i.e., labor, money, material, and equipment) and manage the operational efficiency (i.e., quality, risk, and safety) of the project. Several attempts had been made by the researcher to recognize the importance of allocating the resources to building operations as a way to improve the project performance (Ahmadian Fard Fini et al., 2017). The term "performance" has been of special importance in the business, however, its interpretation may differ among construction practitioners (Georgy et al., 2005). Therefore, improving the management performance can enhance the organization's efficiency.

3. SITE CHARACTERISTICS

The site characteristics are been varied based on the specified project target, owner's requirement, time limitations, coordination between different departments, flexibility, individual performance, local practices, risk calculations, safety measures, etc. In that, the risk management and safety concerns are identified as the indirect causes in predicting project profitability. The selection of advanced techniques and technology based on the project type and project need creates additional

differences in the site practices. Even the soil topology, project layout, site congestions, workspace, project complexity, the unfavourable atmosphere at work, traffic conditions, language barriers, etc., have a different effect on the project which may affect the project duration and cost. The sum of different factors listed above will produce a measurable amount of effect during the project execution. At the different conditions, the management experiences the challenges and barriers in producing the required outturn. Moreover, the evolution of information and technology brings new software, techniques, and machinery for the improvement of the construction processes. In that, the understanding, adoption, implementation, and utilization also get diverse by every project. Therefore, the project site characteristics play a major role during every construction project.

4. PRODUCTIVITY

Generally, productivity is the measure in a ratio between outputs to the input (Chau & Walker, 1988). Mostly the output is measured in terms of fixed quantity or terms of cost (₹). Similarly, the productivity of construction directly affects construction project costs (Nasir et al., 2012).

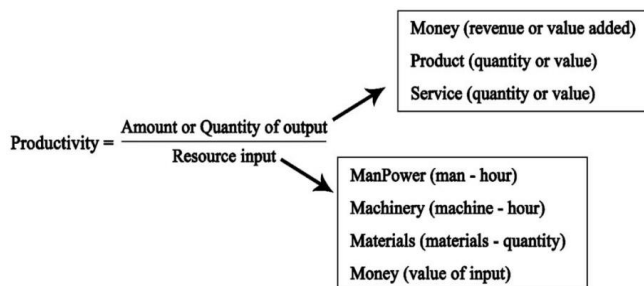


Fig -1: Equation of operational productivity (Source: Durdyev et al., 2018)

Productivity is one way of achieving economic development and improving quality and standards (Chau & Walker, 1988). Equally, productivity is a measure for all the initiative of the work done at the site. The problems with productivity can be split into macro and micro levels. At the macro level, it focuses on contractual techniques, labor law, and labor organization; at the micro-level, on project management and project functioning, especially at the worksite (Dozzi & AbouRizk, 1993). The action towards the productivity enhancement provides possibilities to increase company success and improve staff performance (Yates, 2014). Predicting the methods to maintain productivity throughout the project will benefit the organization in numerous ways. Understanding construction productivity is vital in formulating strategies and in evaluating the efficiency of policies and programs (Chau & Walker, 1988). Ultimately, improving productivity implies, reduced construction costs and better money value.

5. DISCUSSIONS

Construction management is the most efficient department in the construction industry for controlling, organizing, and managing the project from start to end. The substantial progress of proper project management can minimize the project cost by 30 -50%. The well-developed organization concentrates on every minor management challenge that makes a great difference in achieving the expected result. Since projects differ in terms of properties and conditions of implementation, each organization's predicted performance could change from project to project (Georgy et al., 2005). There is a need exists for developing efficient plans and systems to increase an organization's efficiency in executing projects (Demirkesen & Ozorhon, 2017). The best opportunity to improve productivity is to focus on the factors that management can control (Thomas et al., 1990). Site characteristics, management performance, and project execution are the critical factors in producing the desired output and that provides the basis to construct the model as shown in figure 2.

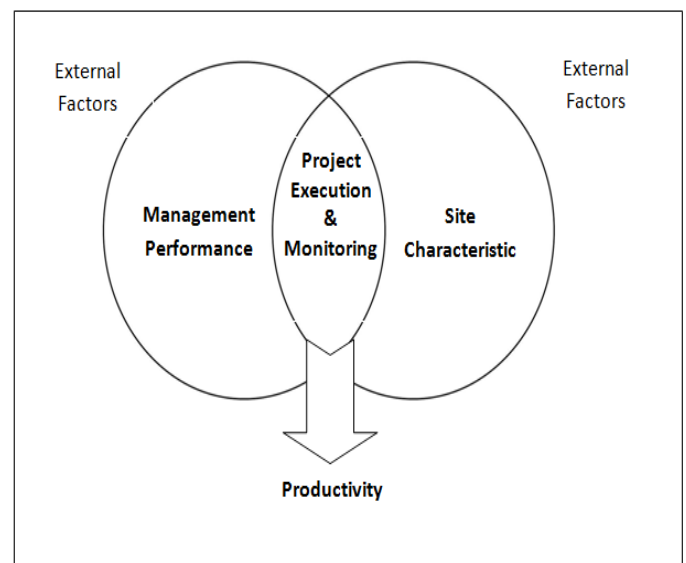


Fig -2: The proposed model.

Each construction project is said to be unique because of the need, type, and on-site variations. Where the external factors deal with the environmental (climate, weather, etc), social, political, cultural, market demand, and legislative elements affects the construction projects. Figure 1 explains the operational productivity, where all the operational factors are controlled by the management. When considered in detail the involvement and commitment of management during the execution puts fort the desired productivity. During the project execution, several reasons might cause the list of some unproductive time in a working day. These may be reflected in the level of supervision, resource shortages, poor wages, unequal distribution of the resources, and interference among the operators (Olomolaiye et al., 1987). Similarly, the efficiency of the team, project members, and the

organization's roles can distantly vary the execution process. Improved management can reduce the risk of low productivity causes (Gurmu & Ongkowijoyo, 2020). Scheduling the work properly is the most important part of the management to produce good results. While planning for proper scheduling of the activities, most of the predictions are calculated only based on the direct work involved by the resources (Chui et al., 2012) rather it should be focused on adding to the indirect work and non-working constraint involved in the site during the project execution.

Moreover, there is no single simple measure for productivity; instead, there is a whole array of ways to measure productivity with the site characteristics and management performance. While the construction sector has the potential to enhance productivity by using new technology, materials, and innovations, its effect is not considered until management techniques are essential to support (Ghodrati et al., 2018). Since the selection of construction techniques and methods for certain site characteristics are based on the management performance. Previous research had stated that proper management has a positive influence over project performance (Zhai et al., 2014). The significance of management and the specification of management practices are the results for determining the level of productivity (Yates, 2014). In other words, it can be expressed as management performance is directly proportional to the productivity of the project. When the management performance at the site execution is comparatively high can produce maximum productivity and vice versa. Achieving proper management is a long-term process, the research regarding management models and different approaches for maintaining the management performance have to be focused on (Demirkesen & Ozorhon, 2017). Thereby the management performances have to be measured in terms of management control, limitations, organization roles, resource management, team efficiency, etc. Additionally, the study regarding the various extents of site characteristics and the site operations can make the management perform better.

3. CONCLUSIONS

This paper emphasizes the importance of management performance and site characteristics in project performance. Understanding the relationship between job site performance and level of productivity is essential to developing the best innovative site practices. Therefore, the model has been developed. As the model prescribes, the involvement and commitment of management during the project execution produces the desired productivity. Hence, the need to investigate the various factors affecting management performance and site-local practices has been increased. Thereby developing the strategies to enhance the management performance in the large/medium organization and framing the proper management structure in MSE's (Micro and Small Enterprises) will provide better guidance to the industry.

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