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A RESEARCH PAPER ON: IMPLEMENTATION OF PROJECT MANAGEMENT SYSTEMS AND TECHNIQUES IN SMALL & INFORMAL CONSTRUCTION FIRMS TO IMPROVE THEIR PERFORMANCE

Usama Mohammad Mobin Sahir
PG Student M-Tech Construction Engineering & Management, G. H. Raisoni University, Amravati, India.

ABSTRACT

Formal project management is not widespread in SMEs. Most of the office work and normal business activities are looked by the staff in an informal manner and in most cases without any project management training. This is not to say that their projects arenot successful. Many SMEs handle projects well and are successful. This could be dueto their tactical knowledge and the individuals involved rather than a conscious effort.But these companies could be falling short of their potential and may perform better ifthey follow a proper formal system of project management practices. Management, produces a degree of predictability, focuses on systems, relays on control, organizes and staffs, accepts the status quo and motivates people to comply with standards.

This project aims to study the approach of small and informal construction firms towards construction management and the various techniques adopted by them and thereby suggest systems and methods in project management to improve their performance. A startup construction firm that did not have formal project management systems and techniques in place was identified and upon discussion with their owners and employees regarding their practices, they were willing to let us assist them in their projects by setting up a project management function there by analyzing their work. During the course of the study, significant improvements were observed in the systemadopted by the firm in various aspects like quality control, project monitoring & tracking and safety. It can thus be concluded that introduction of project management techniques even though on a small but systematic way can help bring improvement in the performance of the firm and contribute to the organization's growth in the long run.

1. INTRODUCTION

OVERVIEW OF INDIAN CONSTRUCTION INDUSTRY & SMEs

In India, the construction industry plays a vital role in the economy of the country. It employs a significant share of the workforce, contributes largely to the GDP (Gross Domestic Product) of the country, and is seen as a key promoter for the growth and development of the Indian economy. This construction industry configuration is reasonably uniform across all developed countries, with the fraction of small firm activity being even more pronounced in developing countries. An increasingly important part is played by small construction firms in improving the overall performance of construction industries across the globe. The growing role of small construction firms is proved in India. It is not only significant in its own right, but also plays an instrumental role in the performance of large construction firms and supply chains.

The successful management of small firms, however, is often troubled by their inherentcharacteristics; in particular, limited workforce and capability, inadequate time and resources for innovation; excessive influence of owner & managers, and difficulty in raising finances and maintaining adequate cash flows. The potential impact of SMEs (Small & Medium scale Enterprises) to the economy leads to the conclusion that they need to increase their competitiveness and quality to match or exceed the competition. The management of small firms tends to come aboutin very unpredictable, informal ways. For example, one of the principal ways of communicating information is via informal face-to-face discussions between individuals which mean that there generally are no printed records. They usually do nothave systems in place to control and monitor projects and they have ill-defined projectmanagement roles and structures. This non-standardized project management practice among small and medium firms affects progress and contributes wastage.

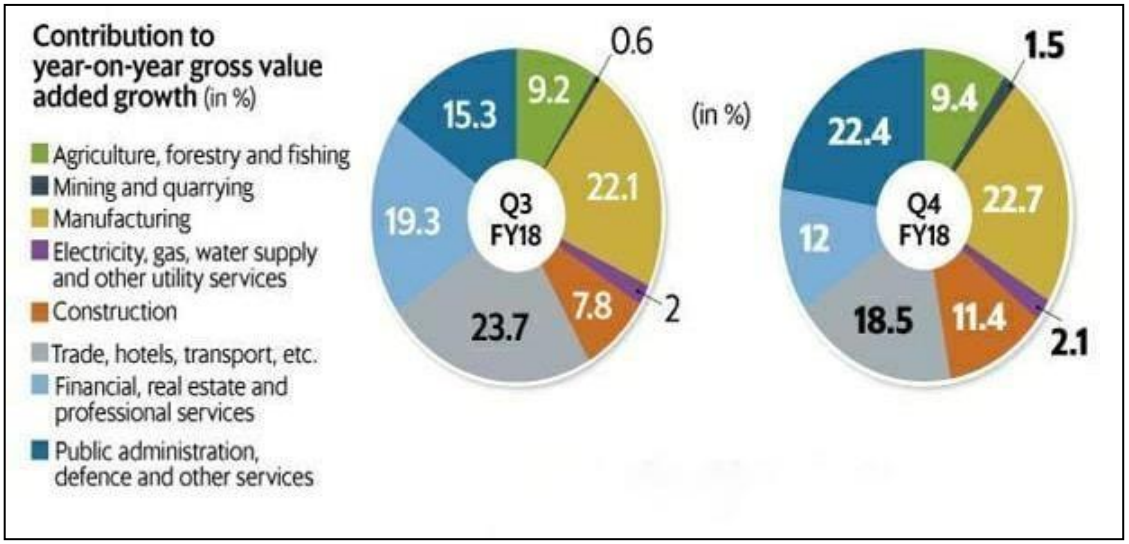

Fig. 1: Contribution of Construction Sector to GDP

2. LITERATURE REVIEW

Analysis of Delay in Execution of Construction Projects (2018) - P. Muralidhar, Rahul Kumar Jain, B. Srivasta, V. Poorna Chandra Rao

Successful management of construction projects is based on three major factors i.e. time, cost and quality. Time and cost are the lifelines of any project apart from its quality. Delay is one of the biggest problems, the construction firms face. Delays can lead to many negative effects such as lawsuits between owners and contractors, higherproject costs, loss of productivity and revenue, and contract termination. Among all the causes for delay the top rank goes to 'late in revising and approving design documents',subsequently delay due to subcontractor, delay due to non-availability of manpower, frequent breakdown of equipment, labour disputes and change in material specificationsin last minute are occupying from second rank to fifth rank respectively. These issues in the construction projects can be resolved by paying some more attention. It is observed that the extremely critical delays are occurring from the client side as well ascontractor side. Other causes are also contributing significantly for delays in executionof projects are due to lack of expertise in labor skills and equipment breakdown etc. Hence the present delay analysis emphasizes on certain things to be focused to reduce the delays in execution of construction projects will leads increase the site productivity.

The Main Project Management Problems Faced by Small and Medium-Sized Civil Construction Enterprises in Brazil (2016) Joao Filipe de Oliveira Baptista, Orlando Celso Longo, Luciane Ferreira Alcoforado

In this research, they tried to identify the relationship between the representativeness ofthe project problems and the use of project management processes in the SME (Small Medium Enterprises) of the civil construction area.

It was determined that the knowledge areas which receive more attention from the Smalland Medium-Sized construction field enterprises are: cost, procurement, time, human resources and integration. Also, lower the use of project management the bigger the representativeness of the problems to the Enterprises. That said, it was concluded that in order to reduce project management problems for the construction field SMEs (Small Medium Enterprises), these Enterprises should devote additional efforts on the systematic use of project management processes which are included in the 5 stages ofa project – mainly in the planning, monitoring and control ones. By doing so, the Enterprises will benefit from some advantages such as: systemic vision of

the projects,process optimization, risk reduction, deviation minimization, communication improvement and more. With these benefits, the Small and Medium Sized constructionfield Enterprises will certainly expand their project success.

Project Management in Small and Medium-Sized Enterprises (2016) -Alejandro J. Roman

A Small Medium Enterprises needs the same management and operation tools as any company, of course adapted to its size, but if in any case it is formalized it is essential for any organization to consider the "Change" manage it, especially to take into accountthe needs of those involved (read stakeholders). Difficulties arise sometimes because of the nature of the SME with its objectives contradicting with the fast changes and theidea of living up to date. Introducing changes in this type of organization sometimes results in difficult times to digest and implement. The author's proposal for the SME (Small Medium Enterprises) is to introduce small visible changes in the immediate, always from the integrative perspective of the client and the profitability of their business.

Project Management Practices in India (2013) – PMI Study released by Shri Sriprakash Jaiswal, the Minister of State for Statistics and Program Implementation (MoSPI)

According to the study, project management practices in India differed not only on thebasis of size and complexity of the project involved but also across sectors as well as forms of ownership (Public or Private). Despite sufficient awareness of the benefits ofproject management, 'lack of client-led demand in India' and 'lack of clarity ofbenefits' stands out as the major factors influencing the adoption of project management practices, even in the private sector. Some of the major challenges in adopting project management practices identified in the study were a low level of understanding of the scope of the term Project Management, which tends to generate a rather myopic view of what it entails, and inadequacy of skilled and semi-skilled manpower often limit theproductivity and cause a huge divergence in terms of the results expected and what is actually delivered at the end.

Project Management: Perspective of small and medium-sized construction firms in Ghana(2010) Clinton Aigbavboa and Wellington Thwala

According to the authors they focused on the execution phase of project management process i.e. mainly on the construction stage. After all reviews and observations they found that the small and medium-sized firms are mostly owned by solely one person who controls and have adapted self-style project management techniques. SMEs (SmallMedium Enterprises) need project management to manage their innovativeness in a focused manner and to achieve growth and satisfy their strategic objectives A Large number of construction SMEs(Small Medium Enterprises) in Ghana partially practice the standard Project Management techniques depending on the size and type of projectas most of this construction SMEs(Small Medium Enterprises) in Ghana are family- owned businesses and, therefore, adapt self-styled management for their operations.

Project management in small to medium-sized enterprises A comparison betweenfirms by size and industry (2009), Turner et al.

In the first stage of their study gathered preliminary data on the use of projectmanagement in SMEs in Ireland. Thereafter they interviewed 18 companies from Ireland, Sweden, Austria and Romania. They used a web-based questionnaire to obtainquantitative data from a larger range of respondents. The first part asked questions aboutthe company. To determine the size of the company: about the number of employees and turnover. The second set of questions related to the nature of projects within the company. These questions were essentially the duration of the company's projects, thesize of project teams and whether the company employs dedicated project managers. Italso enquired whether any Project Management tools and techniques were used and which project management practices the respondents' thought were essential, useful or excessively bureaucratic. This study concluded that smaller younger companies tend to use less formal project management processes than larger older ones. Micro-sized and small companies need less bureaucratic, more

people-focused forms of project management, to facilitate the work of teams of generalists. Medium-sized and large companies need more formal project management approaches to coordinate the work of teams of specialists. But medium-sized companies still simpler forms of project management than large companies. SMEs require simplified versions of project management, which will require fewer resources for their adoption and will simpler to learn. Micro-sized and small companiesin particular require simple, people-focused versions that provide a fit with the cultureof SMEs that can be used by non-specialist project managers. Simplified versions that can be readily applied by non-specialist project managers need to be made available. Project management theory has developed in the context of large projects often in large organizations. The theory also needs to be developed for small projects in smaller organizations.

Successful Project Management for Small to Medium Enterprises (SMEs) (2006)

- **Meister, Walter**

Formal project management is not widespread in Small Medium Enterprises. Most of the office work and normal business activities are looked at by the staff in an informalmanner and in most cases without any project management training. This is not to say that their projects are not successful. Many Small Medium Enterprises handle projectswell and are successful. This could be due to their tactical knowledge and the individuals involved rather than a conscious effort. But these companies could be falling short of their potential and may perform better if they follow a proper formal system of project management practices. Project leadership also plays a major part in project success. "Management produces a degree of predictability, focuses on systems,relies on control, organizes and staffs, accepts the status quo and motivates people to comply with standards. Leadership on the other hand, produces changes, focuses on people, relays on trust, aligns people with direction, challenges the status quo and inspires people to change.

The Need for Systematic Project Management in the Construction Industry (2003)

- **Ramli Mohamad**

This paper primarily tries to target the main aspects of Project Management, viz. scope,time, cost and quality along with the importance of Project Integration. Also level of complexness of projects will increase, the extent of the project management also becomes a lot more advanced and rigorous and can need the people who manage suchprojects to possess certain knowledge, skills, experience, tools and resources. As projects get larger and complicated, the method gets even more scientific and systematic, because it becomes necessary to coordinate and integrate numerous humaninputs and physical elements within the four basic constraints: scope, cost, time and quality. Project integration management is that the knowledge area that involves putting all thepieces together. It encompasses high level strategic planning and synthesis of data and inputs from multiple disciplines to modify decisions to be taken regarding numerous aspects and problems affecting a project. The most relevant conditions for integration management are leadership and knowledge that is wide enough for there to be awareness of what inputs from what disciplines are needed and how these inputs oughtto be brought along in a very constructive way to add value to the project. Equally necessary for a project is defining and managing the scope of the project. Ideally, project scope ought to be outlined and frozen as early as possible, however thisdoesn't invariably happen. Usually, it is the owner who controls the scope, however a lot of more than not, it's also the owner who varies the scope. It is necessary that the scope is managed in a very conscious and systematic approach, with due relation to theaspects of cost, time and quality. In reality the four aspects of scope, cost, time and quality are intimately inter-related and need to be managed with equal importance. Eachaffects the others, and also the failure of managing one facet can jeopardize the full project. The breaking down of the project into practical work packages, referred to as the workbreakdown structure, must be done first. Then the activities need to be outlined, along with their sequencing and durations. It is solely then that the schedules may be developed and used for managing the time aspects of the project. Another aspect oftime management that is usually overlooked is the interface program. A project that features a well-developed interface program can progress smoother than one that has no interface program. Project time management additionally involves monitoring and correcting the plan

as we tend to go on, using field situations as feedback in what ought to be a closed-loop system. Compared to time management, the way cost management is practiced within the construction industry is less objective. A lot of depends on human skills innegotiating contracts, variations and claims. The procurement knowledge area is also closely interrelated. Modern tools like earnedvalue Management (EVM) aren't used a lot of in its true form in the construction industry. In the construction industry, quality is usually taken to mean the quality of the finishedproduct and this is for the most part based on the specifications for the project. There ought to be a correct system for evaluating the overall project performance on adaily basis to provide confidence that the project can meet the required quality standards; and quality control, that involves monitoring specific project resultsand check data to see if they comply with specifications and standards and distinguishing ways in which to rectify defects or causes of unacceptable performance. Value engineering is additionally and a very important element of project management. It is an activity that encompasses project planning, project execution and project control and involves practically all the knowledge areas.

3. CONCLUSION

The construction process is a complex system. The purpose of this work was to identifythe relation between the project's problem and the use of project management processes in Small and unorganized firms in construction. There was significant improvement inthe performance of both the projects covered under this study. It can be concluded thatin order to reduce project management problems for the construction field SMEs, thesecompanies should devote additional efforts on the systematic use of project management processes. Companies will benefit from some advantages such as: systemic vision of the projects, process optimization, deviation minimization, communication improvement and more. The major challenge lies in convincing these small and unorganized firms to adapt these practices in their firm by informing them ofits advantages and the time and cost saving it can bring about in their projects. With better performance, the credibility of the organization also increases and thus growingin the industry.

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