

Time Management in RMC Plant

Prof. S.S. Deshmukh¹ Yogiraj Lohokare²

^{1,2}Department of Civil Engineering

^{1,2}Trinity Academy College of Engineering Pune, India

Abstract— India, being a developing nation is experiencing major growth in its infrastructure. Concrete is the major component of this infrastructural boom. This has led to the requirement of good quality of concrete in very large quantities. This requirement can be fulfilled by the ready mix concrete batching and mixing plants. To fill the gap between the demand and supply of concrete a large number of RMC plants are coming into existence. The main objective of this study is to calculate the Time Management of an RMC plant, which will help an investor or any person or an organization to take investment decisions regarding an RMC plant. The study establishes the cash flow for the RMC plant helpful in investment and capital generation related decisions. The market has been surveyed and the realistic costs for operating and maintaining the RMC plant are collected as also the cost of commissioning and erecting the RMC plant are collected from the manufacturers. Transit mixers form an important component of the RMC plant and their cost of owning and operating form a major part of the Time Management of RMC. Based on the daily demand from some sites in the city of Mumbai, the number of transit mixers that would be required on the RMC plant to fulfill that demand has been simulated using Monte Carlo simulation. The Time Management of the RMC plant has then been calculated. Further with the help of this study the Time Management of any other capacity RMC plant can be calculated and based on requirements and capital availability, the economic option can be selected.

Key words: Ready mix concrete (RMC), Time Management by value engineering tools, Activity Base Management

I. INTRODUCTION

Changes in the business environment, triggered by global competition and technological innovation, have led to innovations in the use of financial and nonfinancial information in organizations. The new environment demands relevant information and data about costs and performance within the organization's activities, processes, products, services and customers.

Still, many companies are not gaining competitive advantages from these enhanced cost systems because they rely on information from a cost system designed for a simpler technological age when competition was only local instead of global, and companies were producing standardized products and services and when speed, quality and performance were less critical for success. Using these systems managers doesn't have timely and relevant information to guide their improvement activities and they don't have accurate and valid information to shape their strategic decisions about processes, products, services and customers.

Activity-based cost (ABC) and activity-based management (ABM) systems emerged to meet the need for accurate information about the cost of resource demands by individual products, services and customers and these

system also enabled indirect and support expenses to be driven first to activities and processes and then to products, services and customers. In this way managers have obtained a clearer picture of the economics of their operations and could improve their decisions.

These changes, the intense debate and high interest coming from researchers, at international level, made us to turn into the study of managerial accounting changes and new managerial accounting practices, tools and techniques. Contributing to the managerial accounting literature, the paper examines how activity-based costing and management evolved over the years; how the ABC/ABM couple was received, adopted and implemented by organizations and practitioners over the years. The country is experiencing an economic growth, which is fueled further by the infrastructural development that is taking place all over the country.

II. LITERATURE SURVEY

Activity-based costing/management have attracted high levels of interest from both academics and practitioners since its emergence in the late 1980's (Bjornenak & Falconer, 2002: 481). ABC was developed as an approach to address problems associated with traditional cost management systems, which tend to have the inability to accurately determine actual production and service costs, or provide useful information for operating decisions. With these deficiencies managers can be exposed to making decisions based on inaccurate data. The higher exposure is for companies with multiple products or services. [1]

The origins of ABC are in the United States of America and it is the result of multiple theoretical and practical research and works. It is also considered one of the most important innovations in cost calculation and managerial accounting. In 1963 Peter Drucker draw attention on the fact that the characteristic of traditional cost calculation methods is the lack of pertinence and relevancy and this leads to mutual subsidy between products and their costs. Later in the 1970s and 1980 American and French researchers – Cooper, Kaplan, Porter, Lebas, Lorino – formulate, elaborate and crystallize the method through articles, publications and works. In these years, CAM-I (The Consortium of Advanced Management, International), an international consulting group, had an important role during the research, financing various works and projects, and it also provided a formative role for studying and formalizing the principles that have become more formally known as Activity-Based Costing. In the late 1990's and early 2000's Bjornenak and Falconer conducted a study about the development of ABC/M journal literature between 1987 and 2000. They began their research in 1987, the year when the first accounting journal publication on ABC/M appeared and stopped at the end of 2000, the latest practical data for the authors. The literature of two countries – UK and USA – formed the basis of their study and they analyzed only the

accounting literature on ABC/M both in applied/practitioners' journals (Management Accounting – UK; Management Accounting – USA; Journal of Cost Management – USA and Journal of Accountancy - USA) and academic research journals (Management Accounting Research, Accounting and Business Research and Accounting Horizons in UK and Journal of Management Accounting Research, Accounting Horizons, Accounting Review and Critical Perspectives in Accounting in the USA)

III. METHODOLOGY

In order to accomplish the objective outlined above, a through review of the literature has been completed first to identify and understand the parameters involved associated with the topic. The study utilizes the existing procedure for finding out the Time Management of RMC plant by implementing Value Engineering tool, Time Management Analysis (LCCA). A mathematical cost model is used to determine the life cycle cost. The cost model has different cost components like initial investment and erection cost, operation cost, maintenance cost, indirect cost etc For RMC batching plant and it also considers the various costs related to transit mixers. Operation cost covers electricity cost, water cost, labour cost etc. Important maintenance cost includes spares, lubricants, fitting cost etc. All the cost data related to RMC plant and transit mixer is collected by visiting the RMC plant. Optimum number of transit mixers for meeting the expected demand is calculated by implementing tool simulation. The expected economic life and the salvage or resale value of RMC plant are assumed. All these costs associated with the RMC plant will have the present value u and factors available in various specifications and codes. The data from different ready mix concrete plant factors have been computed. Finally, the Time Management computation of RMC plant is done by value engineering.

IV. RESULT & ANALYSIS

The technique of simulation has been used to understand the behavior of ready mix concrete manufacturing and distribution process. LCCA has been used to compute the total Time Management of the RMC plant and the following results are obtained.

- Number of transit mixers and their combinations
- The idle time of the plant
- The waiting time of transit mixers
- Overtime of the plant
- Total distance travelled by the transit mixers
- Time when the placing ends
- Quantity of concrete supplied

V. CONCLUSION

The main conclusion of this paper is that the literature and the practice show a mixed picture of ABC and ABM. Successful implementation of ABC/ABM is not the same in every organization or follows the same path. Tailored to the unique strategy, structure, capabilities, and needs of the firm, ABC/ABM is a universally useful concept and system that can take on a multitude of shapes and uses. ABC/ABM

data should meet the needs of the company's decision makers and support their efforts to create value for all stakeholders

- Top management commitment – the need for the senior managers to be fully conversant with the principles of ABC/ABM, to show commitment to the process, to advise on strategic and day-to-day operational problems;
- ABC/ABM implementation training by universities, researchers, and academics through workshops and seminars
- Education, training, and learning highlighting the principles, capabilities, goals, and objectives of ABC/ABM for all employees.
- Analysis of critical activities and monitoring the process, ensuring the results of implementation are rolled out into effective decision making.
- Even the ABC originators are wondering whether ABC provides relevant costs for decisions under stringent conditions or the implementation process isn't excessively costly.

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