

IDENTIFICATION OF FACTORS AFFECTING TO EARNED DURATION METHOD WHILE CONTROLLING THE PROGRESS OF CONSTRUCTION PROJECTS

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Abstract: Most of the Construction projects suffer from time overruns due to a multiplicity of factors. Earned Duration Method (EDM) is the effective tool for project management. Earned Duration Management is a globally accepted and well established integrated planning and controlling methodology that combines the measurement schedule and technical performance. The concept of Schedule prediction Indicator to be used as the addition to EDM has been developed to support site managerial decisions concerning alternation orders.

Key Words: Earned Duration Method, alternation order, Forecast, Project, Duration, Performance

I. INTRODUCTION

The Construction industry is an important industry at global as well as national level. It is the second largest sector in India. It is still difficult to get the exact answer about the real progress of many construction projects. Project delay is most common problems in the construction industry. Project overruns due to time result in delays during project execution. Project control can be defined as the application of processes to measure project performance against the project plan, to enable variances, to be identified and corrected, so that project objectives are achieved.

Since the changes or alternation orders are normal practice in real construction projects, more integrated method is needed to describe the true status of a project. According to the Earned Duration Method (EDM) is recommended as the global standard for project performance measurement.

Project management is about being in control, making sure that the risk of failure is minimized by keeping the project in alignment with the developed project plan. It is also about making informed decisions for adjustments to the plan when required. Project monitoring and control, on the other hand, is the process of observing the implementation of the project plan, collecting data on implementation, conducting analysis by comparing the planned values against the actual implementation records, and using this information to keep the project on track.

In this article, the earned duration performance measures in combination with Earned Duration Method are used to predict the project duration. “Earned Duration Management (EDM) is a well-known technique to control the time and cost performance of a project and to predict the final project duration and cost.”

II. LITERATURE REVIEW

In recent years, many different methods have been proposed to monitor schedule performance and forecast final project duration. In this section, previous studies in the field of project duration forecasting and comparison between related techniques are reviewed.

The earned value management (EVM) technique has been widely used to monitor and control the performance of a project up to a reporting date and forecasting the project’s final duration. The concept of earned value emerged early in the 20th century and was largely based on the principle of earned time, which was popularized by Frank and Lillian Gilbreth (Solanki, 2009). In the 1960s, the Department of Defence of the US government used it to create the PERT/COST technique (Hamilton, 1964), which later evolved into the Cost/Schedule Control System Criteria or C/SCSC (Christensen,1990). In the late 1970s, the latter technique culminated in the Earned Value Management (EVM) method (Fleming & Koppelman, 2010).

EVM rose to prominence in 1991 when the US Navy Avenger II program was cancelled because of performance issues in its cost/schedule objectives that had been detected by EVM (Stevenson, 2001) EVM, as a project management methodology, achieved enormous success on cost management, but almost none in schedule management. This was due to the idiosyncrasies of its schedule indicators, as they fail in the final portion of the schedule for late projects, which generated disbelief in EVM’s applicability for schedule management. Therefore, EVM has been used almost exclusively for cost management for many years. However, the Earned Schedule (ES) technique, created in 2003 by Walt Lipke (Lipke, Schedule is Different, 2003), changed the way of computing schedule indicators in order to eliminate their shortcomings. In academic studies by Vanhoucke (2010; 2011; 2014), it has been shown that the ES method outperforms the traditional methods of EVM. However, although the new indicators indeed perform better, the use of cost data in their calculation causes the obtained information to not always be reliable.

III. CONCEPT OF EARNED DURATION MANAGEMENT

Earned value management (EVM) and similar techniques help managers to focus on projects or work packages that need the most attention, by measuring and highlighting possible future deviations. Forecasting using these techniques provides a reasonable and uniform approach for project tracking and control (Anbari 2003).

Earned schedule (ES) was developed by Walter H. Lipke and published in the March 2003 edition of the Program Management Institute College of Performance Management Journal (Lipke, 2003). The earned schedule concept identifies the time at which the amount of earned value (EV) accrued should have been earned and calculates schedule performance in terms of time, not costs. Earned schedule (ES) uses standard EVM performance indicator values and time-based equations to depict the schedule performance and may help a program manager estimate schedule performance more accurately. While it is generally agreed that the ES

method and consequently its schedule performance index, SPI(t) offer improvements over EVM and SPI, Khamooshi and Golafshani (2014) argue that the ES technique has some conceptual shortcomings and still there are some issues associated with the use of this method for project schedule/duration performance analysis.

IV. FACTORS AFFECTING WHILE ASSESSING EDM

As the total 16 factors that affect to time schedule and their importance that may be encountered in a construction projects were identified.

1. Requirement of preparing Proper Time schedule.

The scheduler must understand the proposed scope of work and the details affecting the connection of each component in order to create a proper construction schedule.

2. Time performance of the project cannot be identified properly without time schedule.

With the help of time performance one can able to know the status of the project without it can't identified.

3. Maintaining & updating the site register record properly/daily

The records have all the data of various construction activities carried out at site. If any additional work has been carried out and it is claimed during billing, these documents need to be produced as a proof.

4. It can Helps to improve the progress of the project.

If one can know the time schedule to in what time activity should complete that helps to improve the project.

5. Useful in assessing status & progress towards meeting objectives.

With the help of time performance one can able to know the status of the project which is help to achieve the objectives of project.

6. Time Schedule only represents schedule management; Proper overall schedule can be handled.

Time schedule help to manage schedule management and scope constraint.

7. It is important to improve the performance of the project by preparing time schedule which help in identifying cost & Time of a project.

Time schedule is a performance management technique that correlated with cost, time and scope.

8. Time schedule is useful as a project planning and a decision making technique.

With the help of time schedule one can do a project planning.

9. Overall performance of the project can be measure by knowing the current status.

The current status will show overall performance of project.

10. Time schedule is useful in identifying problems early to take corrective actions.

Time schedule give early warning sign to take a corrective action.

11. It can help in knowing the updated time.

Updating time known by preparing the time schedule

12. It is important to identify problems early, in taking corrective actions.

How much importance of time schedule to identify a problem for taking corrective action.

13. Time Schedule can help in knowing time required in each activity.

With the help of time schedule one can able to know what is the final cost and time of project at completion.

14.It is important to represent an understanding about the size of the project activity.

How much importance of time scheduling to identify the size of project.

15.Time Schedule is useful forecasting final cost and time of completion of the project.

With the help of time schedule one can able to know what is the final cost and time of project at completion.

16.Prejudge the Problems and it can be solved at the initial level.

Identify the problems before it's coming in project and can be resolved at initial level

V.CONCLUSION

The main outcomes of this paper, the performance of EDI from EDM as a parameter or tool for forecasting the duration of a project at completion was assessed. The results strongly support the argument that a duration-based performance measure is a better significant for use in predicting the duration of a project.

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