

Chapter 5
Case on Integrated Time and Cost Monitoring of Construction Projects

M. Waris *

Senior Lecturer

Faculty of Industrial Management

Universiti Malaysia Pahang

MALAYSIA

Sitansu Panda

Senior Lecturer

Faculty of Industrial Management

Universiti Malaysia Pahang

MALAYSIA

*Corresponding Author: waris@ump.edu.my

1 Introduction

The traditional approach of project time and cost performance measurement is generally based on direct monitoring in which there is a split-up between them. It does not truly relate the time versus cost performance of the project. Furthermore, this approach is not so much efficient to provide early warning indicators and forecast future performance trends. As a remedy of these limitations in traditional monitoring practices, this case has proposed Earned Value Analysis (EVA) which integrates the work scope, cost and time to enable effective project performance measurement

2 Case Study

Universal Construction (UC) Sdn. Bhd. is the Malaysian leading contractor for housing, infrastructure and highway projects. In July 2010, the company was successful in winning a contract for building 150 unit of terrace houses at a site of Bandar Seri Iskandar, Perak. The total duration of the project is 18 months. The scope of work includes construction and completion of main building works incorporating mechanical and electrical works and all associated external works. The overall scope was split into two sections which are as follows;

- Construction and completion of Priority 1 (80 units)
- Construction and completion of Priority 2 (70 units)

In construction project, most of the physical activities are of tangible in nature and hence can be measured directly. The physical progress report of Seri Iskandar Housing project reveals that progress is being monitored via “Percent Complete” technique only. Although, it is the easiest and simplest way of measuring performance, yet it lacks in objectivity to address the factual progress.

The Seri Iskandar Housing Project was awarded at a fixed price contract for which the baseline cost is RM 15 million. The project cash flow reports were developed periodically in order to establish a time-phased budget. It is also known as the Performance Measurement Baseline (PMB) which is the summation of budgets of work scheduled within a stated period (Planned Value).

The authors has observed that the adopted practice of project monitoring is based on comparison between actual and planned progress accomplishments. Both time and cost parameters are measured and reported in isolation with each other by comparing their planned and actual values. As the time variance is measured based on the difference between duration percent complete of project activities with their planned targets. Similar is the case for cost monitoring and its variance calculations. With this traditional approach there is no way to determine the physical amount of work performed in each reporting period. It does not indicate any information about what has actually been delivered on site for the amount of interim payment released to the contractor. Furthermore, it does not provide any information regarding future performance trends. In order to overcome this situation, authors have proposed EVA as tool for an objective monitoring of time and cost for Seri Iskandar Housing project.

Teaching Note
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This case study is suitable for Project Management course offered to MBA students or Master of Project Management students taking course relevant to project monitoring and controlling. This case study is set for level 2, 3 and/or 4 (Comprehension, Application and/or Analysis) of Bloom's taxonomy.

Course Instructor/Lecturers may ask students to be in small groups and read and discuss the case for about 30 minutes. Then lecturer may ask the groups to share their findings with the class. At the end lecturer may use a few minutes to conclude the answers. Lecturer can use the below mentioned explanations as the possible solutions for this case study.

Problem Solution

The current practice of project monitoring adopted by Universal Construction (UC) Sdn Bhd is based on comparison between actual and planned time and cost progress accomplishments. This method has its own limitations whereby it does not relate directly to the worth of the physical progress actually been achieved on the site. Nevertheless, an integrated monitoring approach such as EVA is not fully understood by the project team members of UC. The project team has the limitations for utilizing EVA due to lack of understand, knowledge and practices. The following actions can be taken by the project team of UC to learn effective practices of EVA.

- **Introduce and Encourage Use of Integrated Project Monitoring Approach In UC**

From contractor's point of view, it is very much important that how they are handling the things and control their time and cost objectives. An integrated monitoring approach such as EVA gives them benefits directly that how well they plan their work and it comes directly to their cost economization.

- **Explain Motivating Aspects of EVA for Projects**

EVA method is to make certain the time and cost performance during the project is in control with respect to the original schedule and budget. EVA performance indices are efficient and methodologically simple in order to calculate a number performance measures. The applications of EVA method supports project practitioners with the early warning indicators that allow them to envisage future performance problems and implement corrective actions in a timely manner. It is a useful communication tool and keeps the project team focus on achieving successful completion of projects.

- **Develop a Basic Framework for Adopting EVA in UC**

A basic EVA framework illustrates a theoretical approach that defines procedural steps required for its implementation. It gives a fundamental idea about earned value calculations and analysis. In general, it's good as it guides the project team that how to move forward with this EVA approach. It is generally believed that level of knowledge and understanding of an individual is the real issue. However, this can be overcome by more efforts and motivation towards learning of good project management practices.