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Analysis of Project Performance of a Real Case Study and Assessment of Earned Value and Earned Schedule Techniques for the Prediction of Project Completion Date

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Abstract

The management of a project, especially in the construction industry, is without doubt a subject of high interest, demanding and complex and in the same time challenging and exciting. In the line process of planning-supervision-control, the last element enables the manager to determine the deviation range of actual practice from the original planning. Developing a construction schedule for a complex viaduct using the software MS Project 2007, and tracking the progress with real dates and durations, the results of Earned Value (EV) and Earned Schedule (ES) techniques are assessed regarding the duration forecasting accuracy schedule performance of a late finish project. The schedule includes complex interrelations, logistics in relation to the effective management of construction equipment and unforeseen events during the construction process. Three different scenarios are examined, from the construction of the whole bridge to a single structural element in order to assess the effectiveness of the methods, their sensitivity to re-baselining, and the contribution of critical tasks to the end result.

Keywords

Construction Management, Earned Value, Earned Schedule, Microsoft Project, Egnatia Odos AE

1. Introduction

In project management, it is vital to have adequate means of obtaining information about the progress of a project against a baseline and the anticipated outcome of the project. The information are required to (1) assure managers that the project is progressing within acceptable budget, schedule and quality expectations; (2) support decisions to approve the movement of the project through its stages, and (3) confirm subjective assessments that benefits will be realised. A project has traditionally been viewed as successful if it was completed on time, within budget and with the specified quality. More recent views of project management consider a project successful if it came in within its original schedule and its expected cost, but also if it still works after the implementation as suggested by Mahaney and Lederer (2008) with a particular relevance to construction projects. EV systems, being a standard method of measuring project performance, have been setup to deal with the complex task of controlling and adjusting the baseline project schedule during execution, taking into account project scope, timed delivery, and total project budget. Vanhoucke and Vanvoorde (2006) state that although EV systems have