Applying Weibull analysis to estimate accuracy of different project duration forecasting methods

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ABSTRACT

Recent research shows an increasing interest in developing several methods for forecasting project duration using earned value metrics. However, it seems few study on validating the effectiveness and reliability of these methods. In this report we attempt to analyze and evaluate them by introducing Weibull analysis. It is a statistical approach to evaluate stochastically the schedule performance of projects. Firstly, by weighted average composite rank, the accuracy of forecasting based on sliding moving average (SMA) shows more reliable results than that based on earned value. Hence, we compute the new values of four schedule performance indices, based on planned value, earned duration, earned schedule (Vandevoorde and Vanhoucke, 2005), and sliding moving average by using their corresponding Weibull function at different significance levels, and forecast their respective estimate at completion time (EAC(t)). We illustrate the process of analyzing and evaluating on some real-life project data.

Keywords : Weibull Analysis、Earned Value、Earned schedule、Earned duration、Project duration forecasting、Sliding moving average

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