

The curious case of TCPI

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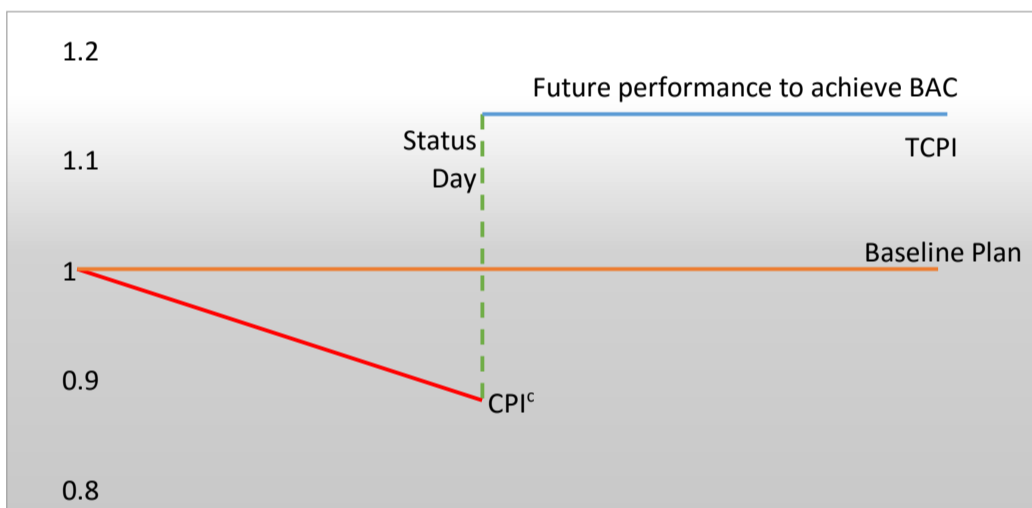
Controlling processes begin as soon as a project fires-up. Being proactive in projects is extremely important and monitoring the performance baseline of a project as early as possible in the project lifecycle can save project managers from many hassles. Actually, being proactive means that a project manager does not allow variances to happen by thorough planning. However, this isn't always the case and project managers end up with variances in their hands meaning that they have act upon this variances.

Earned Value Method (EVM) is a great tool that provides great insides to a project's performance and most importantly it provides the means to forecast the outcomes of a project given the health of a project at the various status dates. It "combines scope, schedule and resource measurements to assess project performance and progress". Included in the methodology, there is an index called To Complete Performance Index (TCPI). Once calculated, the particular index provides the ratio of the work remaining to be done to the funds remaining to be spent, as of the status date. This ration shows you the future efficiency the project must have, in order to remain within the planned estimates. In other words, it can help you see whether you're likely to have excess funds for the project, run out of money, or be right on target. To come up with the above mentioned figures you need to have in hand the overall budget figure of your project (Budget at Completion), the value of the work you have performed up to the status day (Earned Value) and the total amount of money you have spent (Actual Cost) up to the status day.

Let's suppose that you have a project to install 300 workstations in an office building. Each workstation costs 600 euros including the labour required to setup each workstation and you must deliver the project in 100 days. Let's also suppose that your work is evenly distributed to the whole project's duration (3 workstations per day) and you must pay for material and labour every 25 days the amount of 45,000 euros. You are exactly half way through the project and you have installed 129 workstations. In this case your BAC is 180,000 euros, your Actual Cost is 90,000 and your Earned value 77,400 (129 workstations x 600). The work remaining to be done is 102,600 (BAC-EV) and the funds remaining are 90,000 (BAC-AC). The TCPI for the above project is 1,14 meaning that in order to achieve the original budget of the project the team has to increase their work pace. With a rough calculation, your team has to install 3.5 workstations per day (3 x 1.14) for the remainder of the work in order to achieve their goal.

The formula of TCPI looks like this:

$$TCPI = \frac{(BAC - EV)}{(BAC - AC)}$$



The above formula is used if you are still optimistic that you can achieve your original goals. There are cases however, that your original goals cannot be achieved and you might need to use a slightly different formula to calculate the TCPI. In such cases you will need to use the Estimate at Completion figure (EAC) in the denominator, instead of the BAC. The formula should tell you whether you could continue working at the pace you are already working with as the EAC already assumed that the future cost performance of the project will be the same as the past cost performance of the project, hence the TCPI will be the same as the current Cost Performance Index (CPI) of your project. In the case described above the calculations should look like this:

$$CPI = \frac{EV}{AC} = \frac{77400}{90000} = 0.86$$

$$EAC = AC + \frac{BAC - EV}{CPI} \Rightarrow 90000 + \frac{180000 - 77400}{0.86} = 209302$$

$$TCPI = \frac{(BAC - EV)}{(BAC - AC)} \Rightarrow \frac{(180000 - 77400)}{(209302 - 90000)} = 0.86$$

You will also have to remember that, as opposed to the Cost Performance Index (CPI) the TCPI is good when is below 1. This means that you might have enough money to allow you think for other aspects of your project such as quality or for taking advantage of opportunities that might come by.

