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Cost performance index graph

Schedule Performance Index (SPI) and Cost Performance Index (CPI) allows you to evaluate the project's performance. Schedule performance and cost performance are the two main parameters of your project. SPI and CPI help you analyze the effectiveness of any project. Management always looks at these parameters for any deviations from the baseline. Deviations from the baseline cost a lot in project management. Therefore, it is important that you understand these concepts well. Since these concepts involve mathematical calculations, many aspirants ignore them. Once you understand the math, solving questions about the PMP exam will be easy for you. Schedule Performance Index (SPI)The Appendice Performance Index (SPI) shows how you're progressing compared to the planned project schedule. According to the PMBOK guide, The Schedule Performance Index (SPI) is a measure of schedule efficiency, expressed as the ratio of earned value to planned value. The Appendice Performance Index gives you information about the time-effectiveness of your project. The Formula for the Schedule Performance Index (SPI)You can find the Schedule Performance Index by dividing earned value by planned value schedule performance index = (Earned value) / (Planned Value)SPI= EV/PVYou can conclude that: The completed job is equal to the planned job if the SPI is equal to one; the project is on schedule. You've completed more work than planned if the SPI is greater than one; the project is ahead of schedule. If you have completed less work than planned work if the SPI is less than one. The project is behind schedule. The completed work equals the planned job if the SPI equals one; the project is on schedule. Be sure to consider all tasks while calculating the Schedule Performance Index. Sometimes you can only consider those on the critical path and ignore the rest, which will give you an incorrect result. Therefore, make sure that non-critical activities are included. The Cost Performance Index helps you analyze the cost efficiency of the project. It measures the value of the work completed compared to the actual cost being spent. According to the PMBOK Guide, The Cost Performance Index (CPI), a measure of the cost efficiency of budgeted resources was expressed as a ratio of earned value to actual costs. The Cost Performance Index specifies how much you earn for each dollar spent on the project. It shows how well the project sticks to the budget. The Formula for the Cost Performance Index (CPI)You can calculate the Cost performance index by dividing the earned value with actual cost. Cost performance index = (Earned value) // (Actual cost)CPI = EV/ACYou can conclude that: You earn more than you spent if the CPI is greater than one. The project is under budget. You earn less than you spent if the CPI is less than one. The is over budget. Earning and spending equals if the CPI equals one. You can say that the project continues as per the planned spending. You have studied variance (SV and CV) and indices (SPI and CPI). If you think that both sets of parameters provide the same information, you're incorrect. Both are required because there is a difference between variants and indices; the former offers you the difference between the two values and the latter gives a relationship. The result comes in dollar form in cost or schedule variance. A negative variance means the project is in trouble. However, the project is in good shape if the variance is positive. The problem with variance is that you can't compare the health of the project to another, even if your organization has many projects. Therefore, you use the Performance indexes to compare the health of a project among many projects. The Performance Index is the relationship between the parameters, and a look at these relationships will help you determine the health of the project. This makes it easier for you to compare the relative health of projects. You can find efficiency through indexes. SummarySchedule Performance Index and Cost Performance Index help you analyze the progress of a project. These measures can help you determine if you are performing by default. You do well if the ratio is higher than one. If the relationship is less than one, there is a problem with the project and you need to take corrective action. In ideal conditions, the ratio should be one. This blog post is the fourth in a seven series on Earned Value Management and project forecasting. Please read through my previous three posts before reading this post if you are from a search engine or a referral here. The following are the links for other blog posts: The cost performance index (CPI) is a measure of the financial efficiency and efficiency of a project. This represents the amount of completed work for each unit of costs spent. As a relationship, it is calculated by dividing the budgeted cost of work completed, or earned value, by the actual cost of the work being carried out. For example, if a project had an earned value (EV) of £20,000 but actual cost (AC) was £12,000: CPI = EV/AC = 20,000/12,000 = 1.66 If the ratio had a value higher than 1 then it indicates that the project performed well at budget. A CPI of 1 means that the project performs on budget. A CPI of less than 1 means that the project is over budget. Add a comment to Send us feedback The project schedule is a critical project tool. It communicates many things: what tasks need to be done and when, the resources assigned to perform tasks, deadlines, the milestones the team has reached and have yet to achieve, A project that is behind schedule can cause a series of events detrimental to project success: This is why project managers, regardless of the management framework they adopt uses a variety of techniques and tools - Gantt maps, PERT cards, the prioritization matrix, etc., - to keep things on schedule. And then there's this indicator called the schedule performance index (SPI), which measures the project's actual performance against the schedule. Overview: What is the Schedule Performance Index (SPI)? The schedule performance index is a subset of earned value management (EVM), a popular but controversial technique for measuring project performance. EVM shows how the work to date has reached measures against the baselines introduced during the project planning stage. Both schedule variance (SV), also an EVM calculation, and SPI measures whether a project is behind, up, or ahead of schedule. SV measures how much the actual work deviates from the planned schedule, while SPI is the proportion of the performed work on the scheduled job. It quantifies scheduling efficiency and shows, in percentage terms, the project's status vis-à-vis the timeline. Find more information about the schedule variance calculation, plus examples, in our SV article here. Schedule performance index (SPI) at cost performance index (CPI): What's the difference? Cost performance index (CPI) is also an earned value metric. While SPI measures scheduling efficiency, CPI measures the project's cost efficiency. This is the proportion of the work completed to date vs the total amount spent completing the work. The CPI formula is: Cost Performance Index (CPI) = Earned Value(EV) / Actual Cost (AC)CPI = EV/ACIf the CPI calculation is: Equal to 1: The project is on budget. Less than 1: The project is over budget. The value of the exported job is less than the money spent. Larger than 1: The project is under budget. The value of the exported job is greater than the money spent. To calculate earned value: Earned value (EV) = % of Finished Work x Budget upon Completion (BAC)EV = % Actual Complete x BACBudget upon completion is the total project budget. As for the AC, get all the costs associated with the work performed, including labor, machinery, travel, software licenses, etc. Cost Schedule Index (CSI)Another earned value formula worth mentioning is the cost schedule index. It measures the project's overall efficiency and indicates how likely a project deviated from baselines is to recover. This is calculated as: Cost Schedule Index (CSI) = Cost Performance Index (CPI) x Schedule Performance Index(SPI)CSI = CPI x SPIThe furthermore is the KSI of 1.0, the more unlikely a project that is late and/or over budgeted to recover. What is the formula for the schedule performance index? To illustrate the relationship between earned value and planned value needed for calculating SPI, check out this Here we see that the exported work (earned value) to date is greater than the scheduled job (planned value). 2019 2019 your project's SPI performance, the formula is: Schedule Performance Index(SPI) = Earned Value(EV) / Planned Value (PV)SPI = EV/PVIf the SPI calculation delivers a value that: Greater than 1: The project is ahead of schedule. Less than 1: The project is behind schedule. Equal to 1: The project is on schedule. We already know how to calculate the earned value. Finding the planned value multiplies the percentage of the scheduled work to the project's budget. Planned value (PV) = Planned % Complete x Budget upon Completion (BAC)PV = % Planned Complete x BACSo if your project is scheduled for, say, two weeks and it's now exactly a week since you started, according to the schedule, your project should already be 50% complete. Let's look at some examples. Sample SPI calculation No. 1Project #1 has a $5,000 budget and is scheduled for 30 days. To date, 50% of the work has been completed, which is in line with the project's schedule.50% of the work has been completed, as scheduled, but the actual cost is $500 more than planned. Based on the digits on the page, the earned value is: EV = % Actual Complete x BACEV = 50% x $5,000EV = $2,500The planned value to date is: PV = % Planned Complete x BACPV = 50% x $5,000PV = $2,500Substituting EV and PV formula we get: SPI = EV/PVSPI = $2,500/$2,500SPI = 1.00Since SPI is equal to 1, the project is on schedule. You get an hour's work for every hour you put into the project. Now, if you think, surely, it's on schedule, but it's over budget, you're correct. But SPI is not designed to measure cost efficiency. This is CPI's work – there's the cost in cost performance index. This project is on schedule, but over budget, as indicated by the CPI. To calculate CPI: CPI = EV/ACCPI = $2,500/$3,000CPI = 0.83Since CPI is less than 1, the project is over budget. For every $1 you spend on the project, you get $0.83 back. Sample SPI calculation No. 2Next, we have a 15-day project on a $10,000 budget. Three-fourths of the project is scheduled for completion today, but the project team went above and beyond expectations by completing 80% of the work instead of 75%. The project is early. Finished work to date is greater than planned. The project's earned value is: EV = % Actual Complete x BACEV = 80% x $10,000EV = $8,000As for planned value: PV = % Planned complete x BACPV = 75% x $10,000PV = $7,500Now, computing for SPI, we have: SPI = EV/PVSPI = $8,000 /$7,500SPI = 1.06Since SPI is greater than 1, our project is ahead of schedule. For every hour you put in, you get 1.06 hours of work back. But what about the CPI? To get the CPI: CPI = EV/ACCPI = $8,000/$8,000CPI = 1.00In terms of cost efficiency, the project is on budget. You get a dollar's work for every dollar you Spend. Based on our SPI and CPI calculations, the project is on budget and up front tips to help with the schedule performance indexAlthough to measure project performance, have SPI constraints. It's important to keep in mind the following considerations when working with SPI. Tip 1: A good SPI isn't always goodSPI can critically distinguish from noncritical tasks — meaning that noncritical tasks that are ahead of schedule can obscure critical tasks behind schedule. Therefore, SPI may indicate that a project is moving at a good pace when actually isn't. At the end of each project, the SPI is also always marked as 1, regardless of the actual completion date. So even if you deliver the project six months after the deadline, SPI will say it's on schedule. Tip 2: SPI is as good as the data you likeSPI relies greatly on the accuracy of the data you feed on it. If the data you're working on is problematic, e.g. Garbage in, garbage out. Tip 3: SPI should not be used on its own to get an accurate view of the project's schedule performance, SPI values are best analyzed along with other project management techniques, especially the critical path method (CPM). This way, if SPI indicates one thing and CPM another, dig deeper and uncover the true story. Keeping your project schedule on trackSPI is just one of several ways to stay in charge of the project's schedule. While not perfect, it's undoubtedly a useful tool to ensure that the project follows the designated roadmap. So your project team can collaborate more efficiently on projects and better track your project's schedule, consider some of the project management software options Blueprint has reviewed. We assess each one by ease of use, features, pricing, and quality of support. Support.