

Compute the Earned Value (EV) of a Project

Projects don't always stick to plan. Continuous measurement is not optional; rather, it is a necessity. Earned Value Management or Earned Value Analysis is one of the ways to measure the progress of a project against the plan. This article pertains to Project Cost Management

- **Cost Management Proficiency**

Here are several [cost monitor and control techniques](#) stated in the [Project Management](#) Book of Knowledge (PMBOK) for the Project Cost Management knowledge area. One of the Project Cost Management techniques, Earned Value (EV), leverages mathematical formulas to quantify project progress in terms of project cost. **Earned Value does not consider quality.**

Earned Value Analysis, also known as Earned Value Management, contains a litany of formulas that can be categorized as:

- Earned Value Fundamental Formulas
- Earned Value Variance Formulas
- Earned Value Performance Formulas
- Forecasting and To-complete [performance](#) index (TCPI)

In this article, we'll focus on the Earned Value fundamental formulas because all other formulas in Earned Value Management or Earned Value Analysis leverage them.

- **Fundamental Formulas**

Earned Value Management or Earned Value Analysis fundamental formulas consist of:

- **Budget at Completion (BAC):** Represents the total budget cost for the project.
- **Actual Cost (AC):** Represents the expenses incurred in the project till the time of measurement. Actual Cost includes all types of expenses, such as [direct and indirect](#).
- **Planned Value (PV):** Represents the planned work that should have been completed till the time of measurement. PV is calculated as: Planned Completion (%) * BAC.

• **Earned Value (EV):** Represents the actual work that has been completed till the time of measurement. EV is calculated as: Actual Completion (%) * BAC
PMP Exam Note: PV and EV are always represented in monetary terms in the PMP exam. However, there are other ways of calculating PV and EV as units of time. PV and EV pertain to the Project Cost Management knowledge area.

- **Example**

In this Earned Value Management example, suppose you have a budgeted cost of a project at \$900,000. The project is to be completed in 9 months. After a month, you have completed 10% of the project at a total expense of \$100,000. The planned completion should have been 15%. Now, let's see how healthy the project is.

From the scenario, you can extract the following:

- BAC = \$900,000
- AC = \$100,000

The PV and EV can then be computed as follows:

- $PV = \text{Planned Completion (\%)} * BAC = 15\% * \$900,000 = \$135,000$
- $EV = \text{Actual Completion (\%)} * BAC = 10\% * \$900,000 = \$90,000$

Interpretation: Since the PV is greater than EV, this project has delivered less value than was planned.

Though this information is useful, you can conduct a further analysis that will provide a clearer picture on the project costs. The fundamental Earned Value Management or Earned Value Analysis formulas set the basis analysis, such as:

- [Earned Value Variance](#)
- [Earned Value Performance](#)
- [Forecasting and To-Complete Performance Index \(TCPI\)](#)

Apart from these formulas, Project Cost Management has several other important concepts.
