Earned Value Management (EVM)

Project Controls Series

What It Is

A project management technique that measures project performance and progress by combining scope, schedule and costs into a single integrated system of monitoring and reporting.

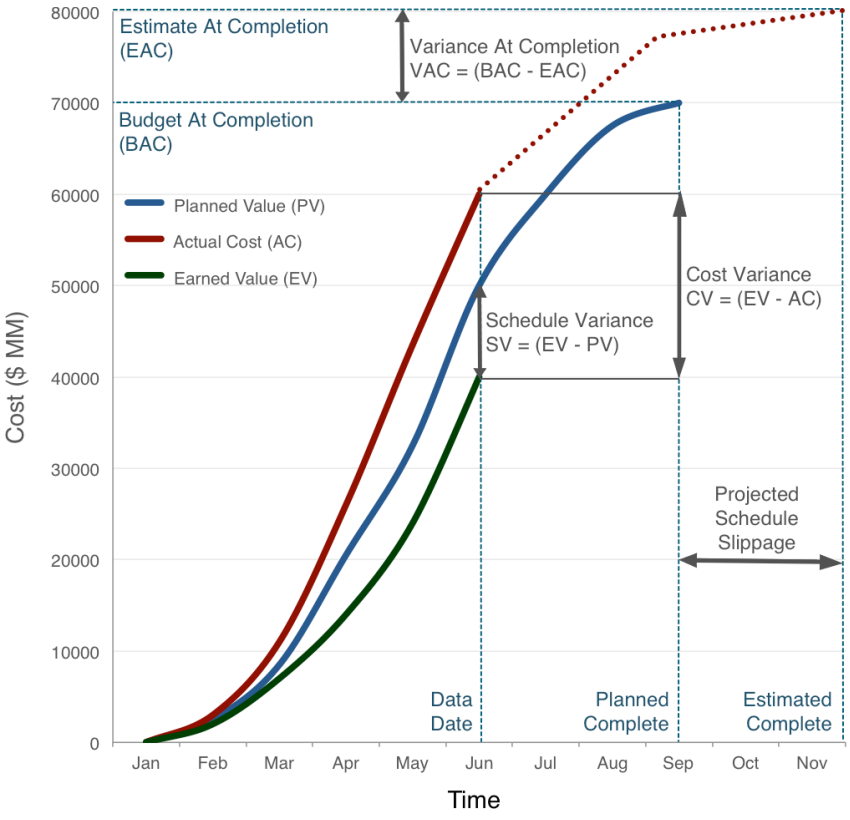
Why You Need It

EVM is the industry standard method of tracking project progress on capital projects. It improves communication, reduces project risk, provides better forecasting, better progress tracking and better project visibility.

What You Need

1. A Project Plan
   (schedule, scope, costs)
2. What you plan to spend and what you expect to have done for the $$$ spent
   X Activities Done by Y Date will cost $MM
3. Metrics to quantify work % complete
   X Activities of equal effort or weighted
4. Method to track work execution on Activities
   Actual % Complete Actual Costs
   Actual Hours Spent Actual Start / Finish
5. Formulas to calculate EV, CV and SV
   See back of page
6. Reports on $ Expenditure vs. Time
   Planned, Actual, Earned, Variances

Reading an S-Curve Report



Data Date
When is this project data as of?

Planned Value > Earned Value
We are behind schedule

Actual Cost > Earned Value
We are over budget

VAC = BAC – EAC (Negative Value)
How far over budget do we expect to be?

Estimated Complete Date vs. Planned Complete Date
When do we expect to finish?

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Primary Data Points and Calculations

BAC	Budget At Completion What you plan to spend for 100% complete	BAC = Total Planned Cost
PV	Planned Value What you plan to spend on what you plan to be completed	PV = BAC x (% Completed Planned)
AC	Actual Cost Actual cost of work performed	AC = SUM(Cost)
EV	Earned Value What you planned to spend on what's actually done	EV = BAC x (% Complete Actual)

Variances and Calculations

CV	Cost Variance How far over or under budget am I?	CV = EV – AC (-) = over (+) = under
CV%	Cost Variance % How far over or under budget expressed as a %	CV% = (CV) / (EV) (-%) = over (+%) = under
SV	Schedule Variance How far ahead or behind schedule am I?	SV = EV – PV (-) = behind (+) = ahead
SV%	Schedule Variance % How far ahead or behind schedule expressed as a %	SV% = (SV) / (PV) (-%) = behind (+%) = ahead
VAC	Variance At Completion Variance of total actual cost and expected cost	VAC = BAC – EAC

Performance Indices

CPI	Cost Performance Index Ratio of planned spend on what's actually done to what's actually spent for the work delivered by reporting date	CPI = (EV) / (AC) > 1 typically good (cost < plan) < 1 bad (cost > plan) = 1 good (cost = plan)
SPI	Schedule Performance Index Ratio of planned spend on what's actually done to planned spend on what you planned to have done by reporting date	SPI = (EV) / (PV) > 1 typically good (ahead vs. plan) < 1 bad (behind vs. plan) = 1 good (on plan)

Forecasts

EAC	Estimate At Completion Expected TOTAL cost for 100% complete] Atypical - assumes similar variances seen will not occur in future	EAC = AC + ((BAC – EV) / CPI)) (typical) EAC = AC + (BAC – EV) (atypical)
ETC	Estimate to Complete Expected cost to finish REMAINING work	ETC = EAC - AC

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