



Earned Value Management Series

Quick Reference Guide

Click on the topics to go directly to that page.

EVM Terms and Definitions	1
EVM Threshold Requirements	4
EVM Budget Hierarchy	5

A Actual Cost Work Performed (ACWP)

The sum of costs actually incurred in accomplishing the work performed. Often referred to as **Actuals** or **Actual Value**.

B Baseline Change Request

A formal method of requesting a scope and/or date change to the baseline.

Basis of Estimate (BoE)

The narrative that supports the cost basis for the proposal. Includes all necessary details, technical aspects, labor and overhead rates, Other Direct Costs (ODCs), and subcontractor and material estimates.

Budget at Completion (BAC)

Total budget value of the project; the sum of all time-phased budgets at the completion of the effort.

Budgeted Cost for Work Performed (BCWP)

The sum of all budget for work actually completed. Typically this is all budget for completed work packages and a portion of open work packages. Often referred to as **Earned Value**.

Budgeted Cost of Work Remaining (BCWR)

Refers to the total value of the budget for work that is yet to be completed. Can be characterized as the **Earned Value to go**.

$$\text{BCWR} = \text{BAC} - \text{Cumulative BCWP}$$

Budgeted Cost for Work Scheduled (BCWS)

The sum the budgets for all work packages, planning packages, level of effort and apportioned effort scheduled to be accomplished within a given time period. Often referred to as **Planned Value**.

C Control Account Manager (CAM)

A manager within an organization, and often for a specific project, who has been given the authority to manage one or more control accounts or WBS elements.

Cost Performance Index (CPI)

Ratio of work accomplished versus work cost incurred for a specified time period. The CPI is an efficiency rating for work accomplished for resources expended.

$$\text{CPI} = \text{BCWP} / \text{ACWP}$$

Cost Variance (CV)

The difference between the earned value (BWCP) and the actual cost (ACWP).

$$\text{CV} = \text{BCWP} - \text{ACWP}$$

D Data Item Description

Contains the format and content preparation instructions for the data product generated by the specific and discrete task requirements as delineated in the contract.

E Earned Value Management System (EVMS)

The integrated set of processes, applications, and practices that follow the guidelines in the EIA Standard 748. The guidelines describe the attributes of an effectively integrated cost, schedule and technical, performance management system.

Earned Value Techniques (EVT)

Techniques used to record performance for work accomplished within a work package, which must be consistent with those utilized in the planning of the work.

Estimate at Completion or Forecast (EAC)

A value expressed in either dollars and/or hours, to represent the projected final costs of work when completed.

$$\text{EAC} = \text{Cum ACWP} + (\text{BCWR} / \text{PF})$$

Some of the more popularly used statistical/calculated forecasts are as follows:

The **Cumulative CPI Forecast** formula calculates a Performance Factor (PF) based on Cumulative BCWP and Cumulative ACWP and assumes this will be the performance for the Remaining Budget (BCWR). Often referred to as the **Floor/Best Case Forecast**.

$$\text{Cum CPI Forecast} = \text{Cum ACWP} + (\text{BCWR} / \text{CPI})$$

The **6 Period Average Forecast** formula calculates a Performance Factor (PF) based on the last 6 Periods of BCWP and ACWP and assumes this will be the Performance for the Remaining Budget (BCWR). Invalid formula if there are not Six Periods of Data.

$$\text{6 Per Ave Forecast} = \text{Cum ACWP} + [\text{BCWR} / (6 \text{ Per Ave BCWP} / 6 \text{ Per Ave ACWP})]$$

The **CPI x SPI Forecast** formula calculates a Performance Factor (PF) based on Cumulative CPI and Cumulative SPI and assumes this will be the performance for the Remaining Budget (BCWR). Often referred to as the **Ceiling/Worst Case Forecast**.

$$\text{CPI x SPI Forecast} = \text{Cum ACWP} + [\text{BCWR} / (\text{Cum CPI} \times \text{Cum SPI})]$$

The **Weighted Cost Schedule Forecast** formula uses a Performance Factor (PF) based on Cumulative BCWP, Cumulative BCWS and Cumulative ACWP.

$$\text{WCSF} = \text{Cum ACWP} + [\text{BCWR} / ((A \times \text{Cumulative CPI}) + (B \times \text{Cumulative SPI}))]$$

A = Cost Weight as % B = Schedule Weight as % A+B = 100%

I

Integrated Baseline Review (IBR)

An IBR is an assessment conducted on government programs to which is intended to verify the technical content and realism of the related performance budgets, resources, and schedules. It should provide a mutual understanding between the government and contractor of the inherent risks in the contractors' performance plans and the underlying management control systems, and it should formulate a plan to handle these risks.

Integrated Master Plan (IMP)

An event-based, top-level plan that consists of a hierarchy of events that are supported by specific accomplishments, and each accomplishment associated with specific criteria that must happen in order to claim completion.

Integrated Master Schedule (IMS)

A project schedule that integrates two or more lower-level schedules so that tasks and milestones are clearly defined. It is updated regularly to identify elements that are behind as well as those ahead of schedule.

Integrated Product Team

An organizational structure established for program performance that diverges from the functional organization. This team has the shared responsibility to produce a specific product or service.

Integrated Program Management Report (IPMR)

The IPMR presents the cost and schedule for the current period as well as in a cumulative format. The IPMR replaces the CPR for new contracts in late 2012. The IPMR consists of seven formats.

M

Management Reserve (MR)

A portion of the contract budget base that is held for management control purposes by the contractor to cover the expense of unanticipated program requirements. It is not a part of the performance measurement baseline. Some organizations may refer to management reserve as *contingency*.

O

Organizational Breakdown Structure (OBS)

A hierarchical structure designed to pinpoint the area of functional responsibility.

Other Direct Costs (ODC)

These are costs that would include general and administrative (GA), overhead (OH) costs and other applied (OH) costs.

P

Performance Measurement Baseline (PMB)

The time-phased budget plan against which contract performance is measured. It is the sum of all control account time phase budgets plus any undistributed budget.

Planning Package

Similar to work packages in that they contain a time-phased budget, but only have a broad general work description. It is future work that cannot be planned in detail and cannot have an assigned earned value technique.

R

Responsibility Assignment Matrix (RAM)

The RAM correlates the work required by a work breakdown structure (WBS) element to the functional organization responsible for accomplishing the assigned tasks. These integration points in the RAM ultimately define the control accounts.

S

Schedule Performance Index (SPI)

Ratio of work accomplished versus work planned, for a specified time period. It gives an indication if the project is ahead or behind schedule. SPI does not take Critical Path into Account.



$$SPI = BCWP / BCWS$$

Schedule Variance (SV)

The difference between the earned value and the planned value at any point in time. Positive variances indicate projects are ahead of schedule and negative variances indicate is behind.



$$SV = BCWP - BCWS$$

Statement of Work (SOW)

A description of product and service to be procured under contract; a statement of requirements.

T

To Complete Performance Index (TCPI)

A metric that calculates the future cost performance that must be achieved in order to complete within the budget. It is computed by dividing the value of the work remaining by the value of the budget or the ETC remaining.



$$TCPI\ BAC = (BAC - Cum\ BCWP) / (BAC - ACWP)$$



$$TCPI\ EAC\ (LRE) = (BAC - Cum\ BCWP) / (EAC - ACWP)$$

U

Undistributed Budget

This is the budget that has been identified for a specific scope of work in the WBS, which has not yet been distributed to a control account.

V

Variance at Complete (VAC)

The difference between budget at complete and estimate at complete.



$$VAC = BAC - EAC$$

W

Work Authorization Document (WAD)

A formal document from the program/project manager to a control account manager identifying scope of work and budget at a control account level.

Work Breakdown Structure (WBS)

A product-oriented breakdown of the contractual work to be performed. The WBS organizes, defines and graphically displays the products to be produced.

Work Breakdown Structure Dictionary

A document that provides a listing of all WBS elements and the technical and cost content of each WBS element. The WBS Dictionary describes all work that is included in each element and often points to work that is excluded.

Work Packages (WP)

Work packages are the smallest unit a WBS can be broken into. They are typically detailed short-span jobs, or material items, identified by the contractor for accomplishing work required to complete the contract.

Earned Value Management: Threshold Requirements

DoD/NASA EVMS Thresholds Guidance

This table reflects the Fall 2008 version of DoDI 5000.02. EVM requirements.

Contracts	Requirements	When Required
Contracts* ≥ \$100M	Compliance with EVMS Guidelines	At contract award throughout contract performance
	*Formal EVM system validation	
	Contract Performance Report	Monthly
	Integrated Master Schedule	
	Integrated Baseline Reviews	Within 180 days after the contract award, exercise of options, and major modifications
Contracts* ≥ \$20M but < \$100M	Compliance with EVMS Guidelines	At contract award throughout contract performance
	No EVM system validation or DCMA surveillance	
	Contract Performance Report (tailored)	Monthly
	Integrated Master Schedule (tailored)	
	Integrated Baseline Reviews	Within 180 days after the contract award, exercise of options, and major modifications
Contracts** < \$100M	EVM optional (discretionary risk-based decision)	
	Cost-benefit analysis required	

Other Agencies Thresholds Requirements



Energy

- ≥ \$20M but < \$50M = Compliance only
- ≥ \$50M = *Formal System Validation required



Health and Human Services

- ≥ \$10M but < \$25M = Compliance only
- ≥ \$25M = *Formal System Validation required



FAA

- ≥ \$10M = EVM on all contracts



Homeland Security

- ≥ \$5M but < \$20M = Discretionary
- ≥ \$20M but < \$50M = Compliance only
- ≥ \$50M = *Formal System Validation required

* Formal EVM System Validation involves detailed in-house certified gov't team review of the contractor's system to assure it will efficiently comply with EVM standards/guidance.

** Contracts – Cost/Incentive contracts, subcontracts, inter-government work agreements
EVM Discouraged on FFP contracts or when nature of work is LOE or Time & Material

Earned Value Management: Budget Hierarchy

This chart is an overview of the fundamental cost elements of a Performance Measurement Baseline or PMB.

