Division of Information Technology Investment Management
Enterprise Architecture & Strategy Group
Office of Information Services

Earned Value Management Best Practices

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1 Introduction, Purpose, And Scope

Earned value management (EVM) is one of the tools in a project manager's toolbox. It is the financial look at what work was *budgeted to be* completed by now, what the budgeted cost was for the work that *actually has been* completed, and what the actual cost to date is. It looks at completion of authorized work and the authorized budget for that completed work, referred to as the "earned value."

Since CMS manages approximately one fifth of the entire Federal budget, it is important that we use the taxpayers' dollars as efficiently and effectively as possible. CMS' portfolio of information technology investments is developed and prioritized through our capital planning and investment control process, which involves senior management throughout the agency.

Once an investment—with its individual projects—is approved for funding, it falls to the investment manager and the project managers to insure that the projects are implemented successfully. Earned value monitoring and management provides early warning when a project is straying from its baseline plan, and shows whether actions taken to correct the situation are effective. HHS requires that certain investments track and report on cost and schedule status monthly.

The purpose of this document is to present some “best practices” for earned value management (EVM). It was originally drafted under contract HHSM-500-2006-00156G by a contractor to the Centers for Medicare & Medicaid Services (CMS) both from observations of other government agencies’ practice of EVM and from the contractor’s observations of gaps in the robust application of EVM in both the public and private sectors. In the case of observed gaps and weaknesses, the contractor applied its EVM expertise to identify means of closing the gaps and strengthening the practice of EVM.

Because this document is intended for use by those who already have a working knowledge of EVM, there is no attempt to explain EVM terminology that is commonly used among practitioners of EVM. A glossary is at Appendix D.

The best practices documented here are those specific practices that should be applied by some or all CMS investments and projects using EVM. Where the best practice might be very simply described—but where the implementation might be non-trivial—an attachment, if available, is provided of a sample or draft document that can be the basis for teams’ implementation of the practice. The reader will find depth on some best practices by referring to the appendices.

2 Best Practices Appropriate For Individual CMS Projects

The subsections that follow describe each best practice and reference any identified resources that would be helpful to CMS teams in adopting the described best practice.

2.1 Define Strong Work Packages

The single most important step that a project manager and control account manager can take to develop and implement a meaningful EVM plan is to define "strong" work packages. Strong work packages have the following characteristics:

- A clear definition of scope;
- A single responsible manager;
- A time-phased (say, monthly) budget;
- A discrete measure of earned value with a clear definition of completion;
- Accurate cost and performance tracking.

2.2 Choose Measures Of Earned Value Wisely

Among the most important characteristics of a strong work package is the method used to measure earned value. See Appendix B for guidance on this topic.

2.3 Conduct Integrated Baseline Reviews

The integrated baseline review (IBR) is an excellent opportunity for the customer and other stakeholders to achieve a mutual understanding with the contractor of important details of the project scope, risk management, schedule, and earned value management plan. IBRs should be scheduled after project inception so that the project team has an opportunity to adequately plan the project. Depending on the complexity and planned duration of the project and the prior experience of the contractor with the project work, the IBR might be held from one to four months after contract award. Of all items to be reviewed at the IBR, the most important from an EVM perspective is the adequacy of work package definitions. See the discussions in subsection 2.1 above and Appendix A. See the IBR artifact elsewhere in the CMS Integrated IT Investment & System Life Cycle Framework.

2.4 Control Changes To The PMB And Document Approved Changes

Project managers should adopt a meaningful change control policy. The reality of significant information technology projects is that requirements change, sometimes

materially. Appendix C, Change Control: Revision To And Changes Of EVM Data, is an example EVM change control policy that the investment or project manager may adapt for use.

2.5 Provide Both Graphic And Numeric Depictions Of EVM Metrics

Project managers and other readers will all appreciate the creation of EVM reports that depict the metrics in both graphic and numeric form. Well-conceived graphic displays allow a quicker grasp of the underlying information. Additionally, graphic displays of time-phased data facilitate the easy identification of trends. Trends are very meaningful in the analysis of EVM metrics. Often, the recent trend is more important to understanding project performance than the absolute values of variances and other metrics.

2.6 Analyze, Report On, And Act On Variances Monthly

The use of EVM is almost pointless if it is not used to actively manage the project. Project managers should identify, analyze, and report on significant variances each month. Once the analysis is complete, the results should be used as the basis for any appropriate corrective action. The corrective action should be documented and assessed after the fact to determine if the anticipated outcomes were realized. Lessons learned over time will lead to stronger project management practices.

Appendix A – Steps To Create An EVM Plan

The basic steps required to establish a strong EVM plan are summarized in Table 1: Summary Of Steps In Creating An EVM Plan, below.

Table 1: Summary Of Steps In Creating An EVM Plan

WBS: Define all of the authorized work in a product-focused work breakdown structure
WBS Dictionary: Define the meaning of and completion criteria for each WBS element
Schedule: Schedule all WBS elements, identifying the interdependencies in a critical path network
OBS: Define the organizational structure in an organizational breakdown structure
RAM: At the intersections of the OBS & WBS, define a responsibility assignment matrix
CAs: In the RAM, identify control accounts for accountability in managing the assigned work; assign a single manager (CAM) to each control account
WPs: Group all WBS elements in each control account into one or more work packages; be certain that each WBS element is in a single WP; be certain that actual costs can be reasonably isolated for each WP
Document the basis for each cost element and range of the cost estimate
PPs: Establish planning packages for far-term effort
Time-Phased Budget: Define a monthly budget (planned value) for each work package and planning package
Reflect the budget for each control account in the control account plans, in the RAM, and in the schedule
Define objective measures of earning value for each work package
Minimize the use of the level-of-effort measure of earned value
MR/UB: Identify any management reserve and undistributed budget
Assure that all EVMS data can be appropriately identified and reconciled to the book of accounts
Assure that all project costs are planned, including commercial items and material
Assure that the total project budget is equal to the sum of the control account budgets (including summary-level planning packages and undistributed budget) plus the management reserve

Appendix B – Summary Of Measures Of Earned Value

One of the most important choices that a control account manager (CAM) makes in establishing an EVM plan is to select an appropriate measure of earned value for each work package. This choice of the measure of interim progress, or completion, for each work package will do more than any other discretionary choice in making the EVM results meaningful.

There is no prescription for making the choice, nor is there a simple rule of thumb. Some guidance for making sound choices follows:

1. Choose discrete, objective measures whenever it is reasonable to do so.
2. If a work package is planned to be started and finished within a single reporting period (typically a calendar month), there is usually no better choice than the so-called 0/100 measure.
3. For longer work packages, choose one of the objective measures that will align the earning of value closely to the corresponding point where costs are incurred. This will distort the results as little as possible during the time that the work has begun but has not yet been completed.
4. If work packages have been made very granular and seem to lend themselves to 0/100, but at the same time there may be too much of a burden tracking costs at that low level, consider rolling up the contemplated work packages into a longer duration work package for which cost can be readily measured. Then treat the completion of the former work packages as weighted milestones within the longer work package.
5. Avoid the use of Level of Effort (LOE) as much as possible so as to not distort the overall project's earned value. Use the Projected Cost Performance Index (PCPI) At Completion method in place of LOE, where there would otherwise be significant portions of the project measured using LOE.

The measures of earned value described below are listed in their rough order of preference and are grouped as discrete measures followed by more subjective measures.

Discrete Measures of Earned Value

- Fixed Formula (X/Y Percent)
    - Take X% on Start / Take Y% on Finish
    - 0/100 – 0% at beginning, 100% at end
      – simple, good for short duration work packages (WP)
    - Other X/Y Percents (25/75, 50/50, 40/60) – also simple; better if WP will span two months

- Units Complete – good for longer WPs where multiples are being done
- Milestone With Weighted Values – use for longer WPs with unequal milestones
- Milestone Weights with Percent Complete –more subjectivity
- Percent Complete – satisfactory, if based on objective metrics
- Apportioned Effort – for work that is not easily measured, but which is proportional to a measurable effort. Avoid using an apportioned measure for a large value work package where the basis for the apportioning is a significantly smaller value work package.

More-subjective Measures Of Earned Value

- Projected Cost Performance Index (PCPI) At Completion – better than LOE – computes earned value using a projected cost performance index (ratio of Budget At Completion (BAC) to current Estimate At Completion (EAC))
- Subjective Percent Complete – subjective assessment of progress (percent complete) is used by the CAM to earn a cumulative percentage of the work package planned value equal to the determined percent complete.
- Level of Effort (LOE) – earned value = planned value each period
    - Use LOE as little as possible because it distorts the total project EVM metrics as the portion of the planned value derived from LOE work packages grows relative to the total project planned value;
    - LOE does not distinguish cost variance from schedule variance. All variance is recognized as cost variance for LOE work packages.

Advantages and Disadvantages of Selected Measures of Earned Value

The table that follows outlines the advantages and disadvantages of many of the common measures of earned value.

Advantages and Disadvantages of Selected Measures of Earned Value

EV Measure	Advantages	Disadvantages
Fixed Formula	Works well for short term work packages and requires minimal effort to determine status.	No significant disadvantages for short term, low value work packages. Not very effective for longer term work packages.
Milestone Weighting	Requires objective, measurable milestones, which most customer and project managers prefer.	Does not allow partial credit for in-process work and requires detailed milestone planning.
Milestone Weighting with Percent Complete	Requires objective, measurable milestones, which most customers prefer; allows for partial credit against milestone.	Requires a Control Account Manager's assessment of the percentage complete for each milestone and requires documentation of the assessment methodology.
Units Complete	An objective and easy way of determining the earned value for an activity.	Limited to production type atmosphere of similar items that are fixed unit prices. Does not take into consideration labor fluctuations, so may misrepresent EV.
Subjective Percent Complete	This is one of the more subjective methods, in which Earned Value is based on the CAM's assessment of the work package progress. Detailed planning at the milestone level is not required.	Customer satisfaction may be low due to the subjectivity involved and the lack of detailed planning. However, CAMs are required to provide the customer with their assessment methodology.
Level of Effort	Trivial to implement and is appropriate for sustaining tasks such as Program Management.	Offers no benefit over simple planned vs. actual comparisons. The LOE method should be kept to a minimal portion of the project planned value to avoid distortion of the project level metrics.
Apportioned Effort	Provided a measure to "unmeasurable" work	Applying to a large-value work package where the basis for the apportioning is a significantly smaller value work package can distort measure.

Appendix C – Change Control: Revision To, And Changes Of, EVM Data

The establishment of an approved performance measurement baseline (PMB) and the tracking of project status represent only the beginning of project management control efforts. Variances, which must be addressed, will inevitably occur. Unanticipated changes to the baseline plan will also occur. Such changes may affect the technical scope, schedule, and budget of the project and, therefore, may require revisions to the baseline. If changes are not documented and controlled, the project being measured may turn out to be something other than the project that was intended. A firm basis for project control can only be assured when the approved baseline incorporates changes timely as they occur.

The ANSI /EIA-748-B-2007 *Earned Value Management Systems* standard recognizes five types of changes to EVM data. These changes are: retroactive changes, authorized changes, internal re-planning, operating schedule/plans changes, and over-target baselines (OTB)

Retroactive Changes

Routine accounting adjustments and the correction of data errors must be permitted in all management information systems. However, that same management information system must prevent inappropriate changes to the PMB. Each project must control retroactive changes to records of work performed that would change the previously recorded amounts for actual costs, earned value, or budgets. This control effort is necessary to ensure baseline integrity and the accuracy of performance measurement data. All retroactive changes to EVM data must be recorded in the Budget Baseline Log or some equivalent.

Authorized Changes

The work scope for authorized changes to the PMB should be entered in a documented, disciplined, and timely manner. By adhering to this guideline the project can increase the probability that budget, schedule, and work remain consistent. In those instances where change orders are un-priced, the contractor will develop its best estimate for planning and budgeting purposes for incorporation into the PMB. The incorporation of changes into the PMB will not eliminate existing cost and schedule variances when no work packages are closed or other PMB adjustments are authorized. Each authorized change must be documented in a change control log (at a minimum in the Budget Baseline Log). The reader is requested to read the section below titled “Change Control to Open Work Packages” to gain additional insight into the re-planning of work in progress.

Internal Re-planning

Making adjustments to the PMB that involve the re-planning of future time-phased effort is a normal management process that needs to be done as things happen and situations change. In performing internal re-planning it is important that overall project scope, cost, and schedule objectives are supported. It is also important that retroactive changes be controlled.

Management Reserve (MR) may be employed where there is future work beyond the scope of open work packages and re-planning actions cannot be handled within existing budgets and schedule constraints of the control accounts. The reader is again requested to read the section below titled "Change Control to Open Work Packages" to gain additional insight into the re-planning of work in progress.

Operating/Schedule Plan Changes

Under normal operating circumstances a performing organization's operating plan and the PMB are one and the same. Occasions may arise when a project finds it advantageous to have an internal recovery plan that differs from the PMB. This recovery plan should not replace the PMB as the basis for performance measurement.

Over-Target Baseline

Over Target Baseline (OTB) is a term used, normally on a government contract, to describe a situation where the budget or schedule in the performance measurement baseline exceeds the project targets. An OTB may be applied by a contractor when it is determined that current program conditions do not permit the performing organizations to have realistic plans for completing the program on schedule. Any revision to the PMB must be authorized by the customer (government).

Change Control For Open Work Packages

When changes are made to the budget of open work packages (WP), they may cloud the interpretation of performance (BCWP) earned to date. To avoid losing the historical performance of the WPs, any WP impacted by such a change should be closed, and a new, revised WP opened. The cumulative budget (Cumulative BCWS) of any impacted work package should be made equal to the earned value (Cumulative BCWP). This step effectively eliminates any schedule variance that existed at the time of the change. This step is seen as logical since the schedule must be reevaluated as a result of the change.

On the other hand the actual cost (ACWP) is maintained at its true value. Any cost variance must be maintained to provide a basis for accurate forecasts of future costs.

The remaining budget or Budgeted Cost of Work Remaining (BCWR = BCWP - BAC for the original work packages) for each work package should be returned to Undistributed Budget (UB). UB is budget included in the Performance Measurement Baseline (PMB) but which has not yet been allocated to a Control Account (CA). The new WPs that are created during this exercise will draw from this UB when they are developed.

Agency Monitoring Of EVM Reporting And Changes

CMS receives all EVM reports monthly and monitors them for conformance to the agency EVM policies and procedures. This review serves as a mechanism (in addition to ongoing management review) to prevent unauthorized changes.

Conclusion

Change is a fact of life for any project. Since changes are inevitable, a change control mechanism is needed. Although changes are seen as necessary, steps must be taken to minimize them and to keep the change control process disciplined. All efforts made in this area of change control will assist in the maintenance of the integrity of the PMB.

All changes to the PMB must be identified with respect to their specific control account and work package identity as well as their schedule identity. Since the control account represents the control level for project efforts, the control account schedule, scope, and budgets must be formally adjusted in accordance with any change control documentation. In those cases where the control account is already open, this adjustment may be accomplished by closing the account and opening a new account, which picks up the remaining scope as well as any additional scope identified in the change. Changes to schedule, scope, and budget may be made to future elements of open work packages within control accounts without closing the work package or control accounts.

Appendix D – Glossary Of Terms

The notational style used in this glossary is to begin the definition of each defined term with a new paragraph beginning with the term in UPPERCASE. Any word or phrase used in a definition may appear in *UPPERCASE ITALICS* to call attention to the fact that a definition of the word or phrase is included elsewhere in the glossary.

ACTUAL COST (AC or ACWP) – The costs actually incurred and recorded in accomplishing the work performed within a given time period. Also known as the *ACTUAL COST OF WORK PERFORMED.*

ACTUAL COST OF WORK PERFORMED (ACWP or AC) – See *ACTUAL COST*.

AUTHORIZED WORK – Effort (scope of work) on a contract or assigned by management; work that is within the scope of the applicable statement of work or contract.

BUDGET AT COMPLETION (BAC) – The total budget planned to accomplish the work defined for a work package or project. For a project, the BAC includes any *UNDISTRIBUTED BUDGET* but does not include any *MANAGEMENT RESERVE*.

BUDGETED COST OF WORK PERFORMED (BCWP) – A measure of the work completed expressed as the planned cost or budgeted amount the work was supposed to have cost. As an example, if an activity were planned to have cost ten dollars, when the activity is complete, we attribute to the activity a *BUDGETED COST OF WORK COMPLETED* amount equal to ten dollars. The BCWP is also known as "*EARNED VALUE*."

BUDGETED COST OF WORK REMAINING (BCWR) – The difference between the *BUDGET AT COMPLETION* and the cumulative *EARNED VALUE* for a project or *WORK PACKAGE*. (More informally, it is the *PLANNED VALUE* that remains to be earned while completing the project or the *WORK PACKAGE*.) This value must be computed to properly close an incomplete *WORK PACKAGE*.

BUDGETED COST OF WORK SCHEDULED (BCWS) – For a project, the sum of the budgets for all *WORK PACKAGES* and *PLANNING PACKAGES* scheduled to be accomplished (including in-process and completed *WORK PACKAGES*), plus the amount of *LEVEL OF EFFORT* and *APPORTIONED* effort scheduled to be accomplished within a given time period. For a *WORK PACKAGE* or *PLANNING PACKAGE*, the BCWS is the budgeted amount for the package. The BCWS is also referred to as the *PLANNED VALUE* (PV).

CONTRACT PERFORMANCE PEPORT (CPR) - a common format for reporting performance information; originated as a *DoD* form (DD Form 2734/1 through 2734/5).

CONTRACT WORK BREAKDOWN STRUCTURE (CWBS) – A portion of the *WORK BREAKDOWN STRUCTURE* for the project developed and maintained by a seller contracting to provide a subproject or a project component.

CONTRACTING OFFICER (CO) - A Federal government employee who has been delegated the authority to enter into, modify, administer, and/or terminate contracts.

CONTRACTING OFFICER'S TECHNICAL REPRESENTATIVE (COTR) - A Federal employee to whom a *CO* has delegated limited authority in writing to make specified contract-related decisions, usually related to the technical requirements of the *SOW*.

CONTROL ACCOUNT (CA) – A management control entity (aggregation of work to be managed) at which budgets (resource plans) and actual costs are accumulated and compared to *EARNED VALUE* for management control purposes. A *CONTROL ACCOUNT* is a natural management point for planning and control since it represents the work assigned to one responsible organizational element for one program work breakdown structure element. A control account is managed by a *CONTROL ACCOUNT MANAGER* (CAM). A *CONTROL ACCOUNT* may contain multiple *WORK PACKAGES*, *PLANNING PACKAGES*, and *CONTROL ACCOUNTS*.

CONTROL ACCOUNT MANAGER (CAM) – The manager responsible for management of a *CONTROL ACCOUNT*.

CONTROL ACCOUNT PLAN (CAP) – A consolidated, time-phased budget for accomplishing all of the work defined in the scope of the *CONTROL ACCOUNT*, including the measures of *EARNED VALUE* to be used for each *WORK PACKAGE* as well as the budgets for those *WORK PACKAGES*, any *PLANNING PACKAGES*, and any lower level *CONTROL ACCOUNTS*.

COST ACCOUNT – An outdated name for a *CONTROL ACCOUNT*.

COST PERFORMANCE INDEX (CPI) – An indicator of the cost efficiency of the work accomplished for a specific period of time as derived by the formula: CPI = BCWP / ACWP, e.g., *EARNED VALUE* divided by *ACTUAL COST*.

COST PERFORMANCE REPORT (CPR) – A report defined by the Department of Defense also used by other organizations for reporting EVM results. Five specific forms of report are defined, known as Format 1 through Format 5.

COST/SCHEDULE STATUS REPORT (C/SSR) – A performance measurement report established for reporting on smaller contracts not subject to reporting full, *ANSI/EIA 748-A Standard for Earned Value Management System* results.

COST VARIANCE (CV) – A measure of project (or work package) performance relative to the project's (or *WORK PACKAGE'S*) budget baseline. It is the difference between *EARNED VALUE* and *ACTUAL COST* (*COST VARIANCE = EARNED VALUE - ACTUAL COST*.) A positive value indicates a favorable condition and a negative value indicates an unfavorable condition.

CRITICAL PATH – The path through a network of dependant tasks within a project resulting in the longest elapsed time from the start of the first task to the completion of the last task such that this path determines the shortest possible duration of the project. Any delay in the completion of a single task in this *CRITICAL PATH* would result in the same delay in completion of the project. *CRITICAL PATH* analysis is the action required to determine the *CRITICAL PATH* or

paths. The *CRITICAL PATH* method is the management discipline of performing *CRITICAL PATH* analysis.

DHHS - U.S. Department of Health & Human Services; the Centers for Medicare & Medicaid Services is an operating division (OPDIV) of DHHS.

DID - Data item description; explains what data is to be entered into each field of a blank form; the *CPR* DID is DI-MGMT-81466A.

DIRECT COST - Costs attributable to a single *WORK PACKAGE*.

DME - Development, maintenance, and enhancement; a category of investment; see *STEADY STATE*.

DoD - U.S. Department of Defense.

EARNED VALUE (EV or BCWP) – A measure of completed work that is equal to the budget planned for that work. See also "*BUDGETED COST OF WORK PERFORMED*."

EARNED VALUE MANAGEMENT SYSTEM (EVMS) – A management control system that integrates the work scope of a program with the schedule and cost elements for optimum program planning and control, unlike a simple planned cost vs. actual cost comparison. A key characteristic of an EVMS is that work accomplished is measured in terms of the cost budgeted for that work. In Federal government contractual terms, an EVMS must conform to the guidelines for such systems defined in ANSI/EIA 748 Standard, *Earned Value Management Systems*.

ESTIMATE AT COMPLETION (EAC) – The current expected cost of the project. The EAC is ordinarily computed as the *ACTUAL COST* to-date plus the current *ESTIMATE TO COMPLETE*. At project inception, the EAC should be identical to the BAC. As project work is accomplished, it is very likely that the EAC will vary from the BAC.

ESTIMATE TO COMPLETE (ETC) – The current anticipated remaining cost of the project. There are frequently multiple *ESTIMATES TO COMPLETE* at any point in time. One or more may be developed by the project manager or *CONTROL ACCOUNT MANAGER* using any reasonable estimating technique. Other estimates may be computed using formulae incorporating cost and schedule trends realized to-date. These formula-based estimates are frequently referred to as "independent estimates."

EXECUTIVE STEERING COMMITTEE (ESC) - Each CMS ESC reviews all IT investments in its functional areas from an enterprise perspective, prioritize IT investment requests using scoring criteria approved by the ITIRB, and prepare recommendations for the ITIRB.

FEDERAL ACQUISITION REGULATION (FAR) - Title 48 U.S.C.; The FAR is the primary regulation used by Federal agencies in acquisition of supplies and services. It is issued by the General Services Administration, the *DoD*, and the National Aeronautics and Space Administration under guidelines of the Office of Management and Budget.

GENERAL & ADMINISTRATIVE COST - *INDIRECT COSTS* associated with the overall management of the company.

GFP - Government-furnished property; furnished to a contractor, according to a contract.

HHS - See *DHHS.*

INDIRECT COST – The shared costs that cannot be attributed to only one program or activity. These costs are sometimes referred to as burden or overhead. If burden, may include *GENERAL AND ADMINISTRATIVE COSTS.*

INTEGRATED BASELINE REVIEW (IBR) – A joint customer-*RESPONSIBLE ORGANIZATION* meeting customarily held promptly after the EVM baseline plan has been established and following significant changes to the baseline. The objectives are to ascertain that: there is a common understanding of work scope; the EVM plan is adequate and, particularly, that the work packages and measures of EV are reasonable; the project risks are recognized and planned for; and, adequate resources are available for the project.

INTEGRATED MASTER SCHEDULE (IMS) - A schedule that integrates any component (or contractor's or subcontractor's) schedules into one, overall schedule for the program, investment, or project.

INTERNAL REPLANNING – Replanning actions for remaining (i.e., future) work scope. This is a normal, discretionary project management action accomplished within the scope, schedule, and cost objectives of the project and is not considered an inappropriate change to the *PERFORMANCE MEASUREMENT BASELINE*.

LATEST REVISED ESTIMATE (LRE) – The LRE is the most recent estimate of cost at completion for a project or *CONTROL ACCOUNT* approved by the project manager. While this estimate is informal and developed as the project manager sees fit, it should be substantiated with supporting information.

LEVEL OF EFFORT (LOE) – A method (the use of which should be minimized) of measuring *EARNED VALUE* for activities of a general or supportive nature that do not lend themselves to a discrete measure of *EARNED VALUE*. This work is usually characterized as being without a deliverable end product. Examples are supervision, project management, and contract administration.

MANAGEMENT RESERVE (MR) – An amount of the total allocated project budget withheld for management control purposes (e.g., the management of risks) rather than being designated for the accomplishment of a specific task or set of tasks. The *MANAGEMENT RESERVE* amount is not included as part of the *PERFORMANCE MEASUREMENT BASELINE* or *BUDGET AT COMPLETION*.

MEASURES FOR EARNING VALUE - The project team will select an appropriate measure of earning value for each work package.

MILESTONE – A scheduled event marking the due date for the accomplishment of a specified effort (work scope) or objective. A *MILESTONE* may mark the start, an interim step, or the end of one or more activities.

ORGANIZATIONAL BREAKDOWN STRUCTURE (OBS) – The hierarchy of the management organization for a project, often graphically depicting the reporting relationships of the management and organizations responsible for accomplishing the work of a project. The OBS is sometimes referred to as the organizational structure. Every assigned item in the *WBS* should have a corresponding assignment in the OBS, and *vice versa*.

OTHER DIRECT COSTS – Direct costs, other than labor and materiel—such as travel, information technology, materials, and incidental supplies—that are allowed to be attributed and charged to a single work package.

OVER TARGET BASELINE (OTB) – A baseline resulting from formal reprogramming of an overrun. An OTB may be used only with the approval of the customer.

PERFORMANCE – An informal term meaning the same as *EARNED VALUE*.

PERFORMANCE BASELINE MANAGEMENT (PBM) - A term coined by the *DHHS* to encompass the employment of [cost and schedule] performance measurement mechanisms to assess each information technology investment's progress against a defined baseline in achieving benefits and continued viability over the information technology investment's entire lifecycle.

PERFORMANCE MEASUREMENT BASELINE (PMB) – The total, time-phased budget plan for a project against which *PERFORMANCE* is measured. It is the time-phased plan for expenditures allocated to accomplish the project objectives. It consists of the budgets for *CONTROL ACCOUNTS* and any applicable *INDIRECT COST* budgets. The PMB also includes budget for *SUMMARY LEVEL PLANNING PACKAGES* and any *UNDISTRIBUTED BUDGET*. *MANAGEMENT RESERVE* is not included in the PMB.

PERFORMING ORGANIZATION – is the organizational unit whose resources accomplish the work of a project, *CONTROL ACCOUNT*, or *WORK PACKAGE*.

PLANNING PACKAGE (PP) – A logical aggregation of work, usually for future efforts, that is identified and budgeted but not yet planned in the same detail as one or more *WORK PACKAGES*.

PLANNED VALUE (PV) – See *BUDGETED COST OF WORK SCHEDULED* (BCWS).

PMT - Performance management tool; a term coined by *DHHS* to avoid mentioning any specific product.

PROGRAM – In the context of EVM, a *PROGRAM* or *PROJECT* is the endeavor to which EVM is being applied. Some organizations may make a significant distinction between PROGRAMS and PROJECTS though, with respect to EVM, no difference should be inferred.

PROGRAM BUDGET – This amount is the total budget for the program including all allocated budget, *UNDISTRIBUTED BUDGET*, and *MANAGEMENT RESERVE*. It is the same amount as *TOTAL ALLOCATED BUDGET*.

PROJECT – In the context of EVM, a *PROJECT* or *PROGRAM* is the endeavor to which EVM is being applied. Some organizations may make a significant distinction between PROGRAMS and PROJECTS though, with respect to EVM, no difference should be inferred.

PROJECT OFFICER (PO) - A PO may be designated to assist the *CO* throughout an acquisition life cycle to ensure satisfactory performance and timely delivery of acceptable products or services.

RESPONSIBILITY ASSIGNMENT MATRIX (RAM) – A matrix formed by aligning the WBS on either the horizontal or vertical axis with the OBS aligned on the other axis and completed by marking the intersection of each WBS element with the OBS element which has been assigned responsibility for performing that WBS element. A RAM is properly formed for EVM purposes when each WBS element has been assigned to one and only one OBS element. A *CONTROL ACCOUNT* is identified at each such marked intersection of a properly formed RAM.

RESPONSIBLE ORGANIZATION – The organizational unit responsible for the accomplishment of assigned work scope.

SCHEDULE – A plan that defines when specified work must be done to accomplish program objectives on time. The *SCHEDULE* used in conjunction with an earned value management system must incorporate all dependencies among and between tasks such that critical path analysis may be performed for the project.

SCHEDULE PERFORMANCE INDEX (SPI) – An indicator of the schedule efficiency at which work accomplished for a specific period of time as derived by the formula: SPI = BCWP / BCWS, e.g., *EARNED VALUE* divided by *PLANNED VALUE*.

SCHEDULE VARIANCE (SV) – A measure of project (or work package) performance relative to the project's (or *WORK PACKAGE'S*) schedule baseline. It is computed as the difference between *EARNED VALUE* and the budget or *PLANNED VALUE* (*SCHEDULE VARIANCE = EARNED VALUE – PLANNED VALUE*) for the same time interval. A positive value is favorable while a negative value is unfavorable.

STATEMENT OF WORK (SOW) – The document that defines the work scope requirements for a project, or a subset of a project.

STEADY STATE (SS) - A DHHS term indicating that an investment or project is in the operations and maintenance phase of its life cycle; a category of investment; see *DME.*

SUMMARY LEVEL PLANNING PACKAGE (SLPP) – An aggregation of work for far-term efforts, not assigned to a *CONTROL ACCOUNT*, but which can be assigned to higher level WBS elements (and is therefore not *UNDISTRIBUTED BUDGET*). In other respects, such as having a time-phased budget and being part of the PMB, an SLPP is similar to a *PLANNING PACKAGE*.

TOTAL ALLOCATED BUDGET (TAB) – The sum of all budgets allocated to the project. *TOTAL ALLOCATED BUDGET* consists of the *PERFORMANCE MEASUREMENT BASELINE* and all *MANAGEMENT RESERVE*. The *TOTAL ALLOCATED BUDGET* may be referred to alternatively as the *PROGRAM BUDGET*.

UNDEFINITIZED WORK – Authorized work for which a firm contract value has not been agreed to or otherwise determined.

UNDISTRIBUTED BUDGET (UB) – Budget that is part of the *PERFORMANCE MEASUREMENT BASELINE* and has not been allocated to a *CONTROL ACCOUNT* or *SUMMARY LEVEL PLANNING PACKAGE*. Amounts are normally held in *UNDISTRIBUTED BUDGET* only for the duration required to complete planning, after which those amounts would be allocated to specific work in a *CONTROL ACCOUNT* or to a *SUMMARY LEVEL PLANNING PACKAGE*.

VARIANCE AT COMPLETION (VAC) – The VAC is computed by subtracting the *ESTIMATE AT COMPLETION* (EAC) from the *BUDGET AT COMPLETION* (BAC).

WORK AUTHORIZATION DOCUMENT (WAD) – The document that assigns responsibility and authority for completing a defined task within a WAD-specified budget, schedule, and work statement.

WORK BREAKDOWN STRUCTURE (WBS) – A hierarchical, product-oriented decomposition of project activities showing the breakdown of the work necessary to achieve the project objectives. The WBS for earned value management purposes must include activities for all labor and the sourcing of all items of material such that the sum of the costs for all WBS elements will equal the total costs to be incurred for the project. The WBS is used for purposes of work authorization, tracking, and reporting. See also *ORGANIZATIONAL BREAKDOWN STRUCTURE.*

WORK BREAKDOWN STRUCTURE (WBS) DICTIONARY – A listing of *WORK BREAKDOWN STRUCTURE* elements with a description of the work scope for each element. The work descriptions are normally at a summary level and provide for clear segregation of work for purposes of work authorization and accounting.

WORK PACKAGE (WP) – A task or set of tasks performed within a *CONTROL ACCOUNT*. A WP has a defined work scope, a scheduled beginning and end, a time-phased budget, and a documented method of measuring *EARNED VALUE*.