DEPARTMENT OF DEFENSE EARNED VALUE MANAGEMENT SYSTEM INTERPRETATION GUIDE

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FOREWORD

Earned Value Management (EVM) is one of the DoD's and industry's most powerful program management tools. Government and industry program managers use EVM to assess cost, schedule and technical progress on programs and to support proactive decision-making as they navigate the day-to-day constraints and risks that all DoD programs face.

The Office of Performance Assessment and Root Cause Analyses (PARCA) is the single voice accountable for EVM policy, oversight, and governance across the DoD. To be effective, EVM practices and competencies must be integrated into the program manager's acquisition decision-making process; the data provided by the EVM System (EVMS) must be timely, accurate, reliable and auditable; and the EVMS must be implemented in a disciplined manner consistent with the 32 Guidelines contained in the Electronic Industries Alliance Standard-748 EVMS (EIA-748) (Reference (a)). PARCA's objective for the DoD EVMS Interpretation Guide (EVMSIG) is to improve the effectiveness of EVM across the Department.

The DoD EVMSIG will be used as the basis for the DoD to assess EVMS compliance to the EIA-748 Guidelines. It was developed in collaboration with DoD EVMS experts from the Office of the Secretary of Defense and the organizations responsible for conducting EVMS compliance reviews (i.e., Defense Contract Management Agency, Intelligence Community, Navy Shipbuilding, and Defense Contract Audit Agency).

The following strategies underlie the content of this policy:

1) Reduce the implementation burden associated with demonstrating compliance with the 32 Guidelines contained in EIA-748 by promoting consistent application of EVMS compliance assessments across DoD.
2) Emphasize the need to establish clear and measurable technical objectives for planning, performance measurement, and managing the baseline.
3) Establish an understanding of how the implementation of program-unique management practices can be consistent with broader EVMS guideline characteristics that support various ways of being compliant.

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1 INTRODUCTION

1.1 Purpose of Guide

Earned Value Management (EVM) is a widely accepted industry best practice for program management that is used across the Department of Defense (DoD), the Federal government, and the commercial sector. Government and industry program managers use EVM as a program management tool to provide joint situational awareness of program status and to assess the cost, schedule, and technical performance of programs for proactive course correction. An EVM System (EVMS) is the management control system that integrates a program's work scope, schedule, and cost parameters for optimum program planning and control. To be useful as a program management tool, program managers must incorporate EVM into their acquisition decision-making processes; the EVM performance data generated by the EVMS must be timely, accurate, reliable, and auditable; and the EVMS must be implemented in a disciplined manner consistent with the 32 EVMS Guidelines prescribed in Section 2 of the Electronic Industries Alliance Standard-748 EVMS (EIA-748) (Reference (a)), hereafter referred to as "the 32 Guidelines."

The DoD EVMS Interpretation Guide (EVMSIG), hereafter referred to as "the Guide", provides the overarching DoD interpretation of the 32 Guidelines where an EVMS requirement is applied. It serves as the authoritative source for EVMS interpretive guidance and is used as the basis for the DoD to assess EVMS compliance to the 32 Guidelines in accordance with Defense Federal Acquisition Regulation Supplement (DFARS) Subpart 234.2 and 234.201 (References (b) and (c)). The Guide provides the DoD Strategic Intent behind each guideline as well as the specific attributes required in a compliant EVMS. Those attributes are the general qualities of effective implementation that are tested in support of determining EVMS compliance as it relates to the 32 Guidelines. As applicable, the DoD Strategic Intent section may clarify where differences in guideline interpretation exist for development and production type work. DoD agencies and organizations charged with conducting initial and continuing EVMS compliance activities will establish amplifying agency procedures and/or guidance to clarify how they are implementing this Guide to include the development of evaluation methods for the attributes associated with each of the 32 Guidelines.

1.2 EVM Policy

The Office of Management and Budget Circular No. A-11 (Reference (d)), the Federal Acquisition Regulation (FAR) Subpart 34.2 and Part 52 (References (e) through (h)) require federal government agency contractors to establish, maintain, and use an EVMS that is compliant with the 32 Guidelines on all major capital asset acquisitions. Based on these federal regulations and the DoD Instruction 5000.02 (DoDI 5000.02) (Reference (i)), the DoD established the Defense Federal Acquisition Regulation Supplement (DFARS) 234.201 (Reference (c)), which prescribes application of an EVMS, via the DFARS 252.234-7002 EVMS clause (Reference (j)). When EVM reporting is contractually required, the contractor must submit to the government an Integrated Program Management Report (IPMR) (DI-MGMT-81861) (Reference (k)) to report program cost and schedule performance data. The IPMR is being phased in to replace the Contract Performance Report (CPR) (DI-MGMT-81466) and the Integrated Master Schedule (IMS) (DI-MGMT-81650). Hereafter, for simplicity purposes, the term "IPMR" is used to reference legacy or current CPR/IMS DIDs. There are times in this Guide when the IMS reference is to an output of the contractor's internal management system, i.e., a work product, which may not be referred to in the same context as the IPMR.

In accordance with the DoDI 5000.02 (Reference (i)), multiple disciplines in the acquisition community will use EVM to ensure sound planning and resourcing of all tasks required for contract performance and to manage program cost, schedule and technical performance. DFARS 234.201 (Reference (b)) requires contractors to use an EVMS that is compliant with the 32 Guidelines. When DoD is the Cognizant Federal Agency, the Defense Contract Management Agency (DCMA) is responsible for determining EVMS compliance. For contracts issued by an Intelligence Community (IC) Agency, the compliance responsibility resides with the IC Agency applying its acquisition authority. The procuring contracting officer does not retain this function, DFARS Subpart 242.302 (S-71, (Reference (l)). In accordance with Under Secretary of Defense Memorandums (References (m) and (n)), DoD Components in the IC are exempted from delegating EVMS review authorities to DCMA. As structured within the DoD, the Navy Supervisor of Shipbuilding (SUPSHIP) has the responsibility and authority to conduct EVMS surveillance activities, and the requirement to coordinate with DCMA and Naval Sea Systems Command (NAVSEA) HQ stakeholders, for the contracts under the SUPSHIP's cognizance.

1.3 EVMS Compliance

A properly implemented EVMS will provide internal controls and formal program management processes for managing any acquisition within the DoD. These controls and processes will ensure both contractor and government program managers, as well as other government stakeholders, receive contract performance data that:

- Relates time-phased budgets to corresponding scope of work;
- Objectively measures work progress;
- Reflects achievement of program objectives within budget, on schedule, and within technical performance parameters;
- Allows for informed decisions and corrective action;
- Is timely, accurate, reliable, and auditable;
- Allows for estimation of future costs;
- Supplies managers at all levels with appropriate program status information; and
- Is derived from the same EVMS the contractor uses to manage the contract.

The routine use of generally accepted management best practices and typical business management systems should already be firmly embedded into the contractor's culture and business processes. Adding the EVM requirement to established program management business disciplines should not necessitate a major reorganization or refitting of current processes. It is expected that contractors will implement an EVMS by leveraging existing management processes and tools already used to conduct business.

The DoD requires the management system and processes (i.e., tools, techniques and procedures) used by the contractor's program management staff to be formally documented in either a stand-alone EVM System Description (SD) or in a set or series of integrated process descriptions/procedures that describe the contractor's approach to a compliant EVMS. This documentation will describe how the contractor's business processes and associated data/work products meet the intentions of the 32 Guidelines. The work products identified in this Guide summarize the type of documentation or system inputs/outputs

needed for, or resulting from, the integration of subsystems and processes that a contractor may use to effectively manage their programs.

As part of compliance assessments, contractors are expected to both explain and demonstrate how the integrated parts of the EVMS are used to comply with the 32 Guidelines. There are three steps for evaluating compliance: (1) assess whether the contractor's EVM SD adequately documents how its system meets the intent of the 32 Guidelines, (2) evaluate the contractor's ability to demonstrate the EVMS implementation as described in the SD and supplemental procedures, and (3) ensure the EVMS is providing timely, accurate, reliable and auditable data. Compliance is determined based upon the results of all three steps.

Contractors are required to demonstrate compliance with the 32 Guidelines regardless of EVM reporting requirements defined in the contractual Contract Data Requirements List (CDRL) when the EVMS DFARS Clause is applied. The flowdown of an EVMS requirement to a subcontractor requires special consideration to ensure subcontractor compliance with the 32 Guidelines and for the prime contractor to incorporate subcontractor EVMS data into its EVMS. It is incumbent upon the prime contractor to develop and demonstrate an effective methodology for managing the integration of its subcontractors into their EVMS.

1.4 Content and Format of Guide

The Guide contains eight sections. Section 1.0, the Introduction, provides the purpose of the Guide, an overview of EVM policy, a brief description of EVMS compliance assessments, and a synopsis of the overall content and format of the Guide.

Sections 2.0 through 6.0 contain the 32 Guidelines in five categories:

- Section 2.0 Organization – Guidelines 1 through 5
- Section 3.0 Planning, Scheduling, and Budgeting – Guidelines 6 through 15
- Section 4.0 Accounting Considerations – Guidelines 16 through 21
- Section 5.0 Analysis and Management Reporting – Guidelines 22 through 27, and
- Section 6.0 Revisions and Data Maintenance – Guidelines 28 through 32.

These sections provide the guideline interpretations. Each section describes the purpose, management value, strategic intent, attributes, and typical work products of the guidelines in that particular category. The work products included for each guideline are not all-inclusive and the terminology referenced for the products may be representative of a typical EVMS output. In some instances, the work product could be a process or EVMS subsystem mapping document. The format for providing the guideline interpretations and a brief description of what each topic relays about the guideline is shown in Figure 1: DoD EVMSIG Guideline Format.

Figure 1: DoD EVMSIG Guideline Format

EVMS Category: *Describes the EVMS Category.*	
EIA Standard Guideline: *Displays the EIA Standard Guideline section number.*	*Short title derived from guideline description.*
Displays the guideline language as published in Section 2 of the EIA-748.	
DoD Strategic Intent	
Purpose of Guideline: *Concise description of why the guideline exists.* **Management Value:** *Description of how the guideline contributes to program management. It describes how program management will benefit from proper implementation of the guideline and, conversely, may provide the impact of non-compliance.* **Intent of Guideline:** *Management system characteristics and objectives in the design and implementation of an EVMS. This should provide sufficient information to understand expectations for implementing an effective EVMS.*	
Attributes	
Qualities of an effective EVMS as a result of implementing that particular guideline. The attributes describe the specific characteristics of the management system that satisfies the objectives for determining guideline compliance with the EIA-748.	
Typical Work Products	
Listing of the contractor or program work products that may be typically reviewed as part of determining compliance with the specific guideline. These products are typical artifacts that can be used to demonstrate an attribute is met and can be used to demonstrate compliance with the guidelines. The actual documentation for any system is based on the contractor's processes described in its EVM SD. The work products referenced in this guide are typical products that may vary based upon how the contractor integrates their processes and may differ from contractor to contractor both in name and content.	

Section 7.0, the Glossary, contains acronyms and definitions for specific EVM-related terms. These terms and their definitions are for the purposes of this Guide. And lastly, Section 8.0, References, contains a list of the regulations, guidebooks, and policy documents cited in this Guide.

2 EVMS GUIDELINES: ORGANIZATION CATEGORY (Guidelines 1 – 5)

The Organization category focuses on the fundamental preparations for executing the program technical objectives to ensure effective management control of the program. The primary objectives of the five guidelines (1 – 5) that comprise this category are to establish the basic framework for capturing all contractually authorized work to be accomplished, identify the functional organization hierarchy responsible for accomplishing that work, and create an integrated structure that allows for management control of all effort.

A structured approach for decomposing the program work into manageable segments creates the Work Breakdown Structure (WBS) (Guideline 1) wherein each WBS element contains a specific scope of work. The work is defined in the WBS Dictionary and includes a description of the technical and cost content for each element. The WBS also provides the basic structure for data collection and reporting of contract status. The establishment of an organizational structure (i.e., Organization Breakdown Structure (OBS)) identifies which managers in the corporate structure, to include major subcontractors, will have responsibility for work accomplishment (Guideline 2).

The Organization guidelines require the use of a fully integrated management system to execute the contract. The planning, scheduling, budgeting, work authorization, and cost accumulation management subsystems must integrate in the EVMS such that the data derived from one system is relatable to and consistent with the data of each of the other systems. The proper integration of the contractor's business systems and EVMS subsystems ensures the information and performance data retrieved from the EVMS is timely, accurate, reliable, and auditable (Guideline 3). In addition, the guidelines require the contractor to identify and document who within the company hierarchy is responsible for establishing and managing indirect budgets (e.g., overhead, General & Administrative, and Cost of Money) (Guideline 4).

The assignment of organizational elements to specific WBS elements establishes the control accounts, which are the primary management control point for work authorization, budgeting, cost accumulation and performance measurement (Guideline 5). Through creating control accounts, the program manager communicates who (i.e., the Control Account Manager (CAM)) in the organization is given authority and responsibility to manage, control, and facilitate the allocation of resources to accomplish a specific scope of work. The CAM is ultimately responsible for the cost, schedule, and technical performance associated with accomplishing the scope of work within a control account. The CAM is also responsible for planning the resources necessary to accomplish that scope of work. In some cases, particularly in a production environment, other functional organizations (e.g., Planning, Business Operations, etc.) may assume a more active role in the planning and management of resources in support of the CAM's responsibilities. In this scenario effective internal bilateral communication between the CAM and the functional organizations is essential to ensure accomplishment of the CAM's responsibility for managing the execution of the control account scope of work.

Subsections 2.1 through 2.5 describe DoD's interpretation of the intent of each of the five Organization guidelines and expectations for implementing each guideline.

2.1 Guideline 1: Define the WBS

EVMS Category: Organization	
EIA Standard Guideline: 2.1a	**Define the Work Breakdown Structure (WBS)**
Define the authorized work elements for the program. A Work Breakdown Structure (WBS), tailored for effective internal management control, is commonly used in this process.	

DoD Strategic Intent

Purpose of Guideline: To provide a structured approach for defining and segregating the contracted work scope to support effective management and control of the program.

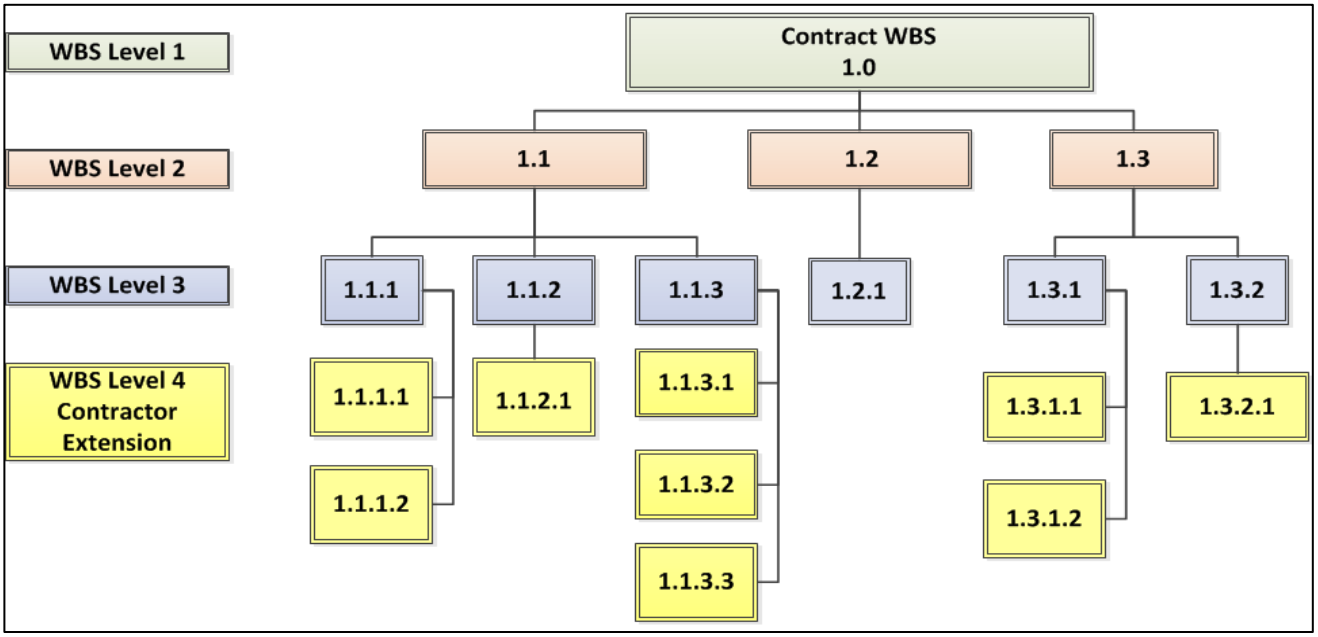
Management Value: The use of a well-defined WBS facilitates communication between the government and the contractor and helps ensure the entire scope of work is captured, defined, and subsequently allocated to the organizations responsible for performance of the work. It facilitates data collection and traceability and provides a control framework for integrated program management, work authorization, tracking, and reporting purposes.

Intent of Guideline: The complete and proper identification of all contractually authorized work to be accomplished on a program helps ensure resources are correctly identified and work is planned within the authorized program schedule. The use of a WBS facilitates this objective. The WBS is a product-oriented, hierarchical breakdown of the program requirements. The WBS includes all program elements (e.g., hardware, software, services, data, or facilities) and is decomposed to lower levels for planning, budgeting, scheduling, cost accounting, work authorization, measuring progress, and management control purposes. (See Figure 2: Example Contract WBS). The WBS must also include all subcontracted work scope.

A well-developed WBS provides the program manager with a framework that represents all contract work scope and facilitates correlation between the contract scope (e.g., Statement of Work, Design Build Specifications, etc.) and technical criteria. The WBS is defined, developed, and maintained throughout the system life cycle based on a disciplined application of the systems engineering process for program management execution. In all cases, the contractor must extend the contract WBS to a level needed for effective internal management control. This should not be an arbitrary level established across the program. A WBS dictionary is typically used to describe the work scope.

The WBS is structured to best manage and report on program performance. Cost collection requirements, such as Cost and Software Data Reporting (CSDR), may require a different reporting structure than the WBS used in the EVMS for program management.

Figure 2: Example Contract WBS



Attributes

- A single product-oriented WBS is used for a given contract and is extended to the level necessary for management action.
- The WBS includes all contract work including the work scope performed by subcontractors and any revisions resulting from authorized changes and modifications.

Typical Work Products

- Statement of Work (SOW)
- Work Breakdown Structure (WBS)
- Traceability matrix from government requirements (e.g., SOW, Build Specifications) to WBS
- WBS Index/Dictionary
- Integrated Program Management Report (IPMR)
- Base contract and modifications

2.2 Guideline 2: Define Program OBS

EVMS Category: Organization	
EIA Standard Guideline: 2.1b	**Define Program Organizational Breakdown Structure (OBS)**

Identify the program organizational structure, including the major subcontractors, responsible for accomplishing the authorized work, and define the organizational elements in which work will be planned and controlled.

DoD Strategic Intent

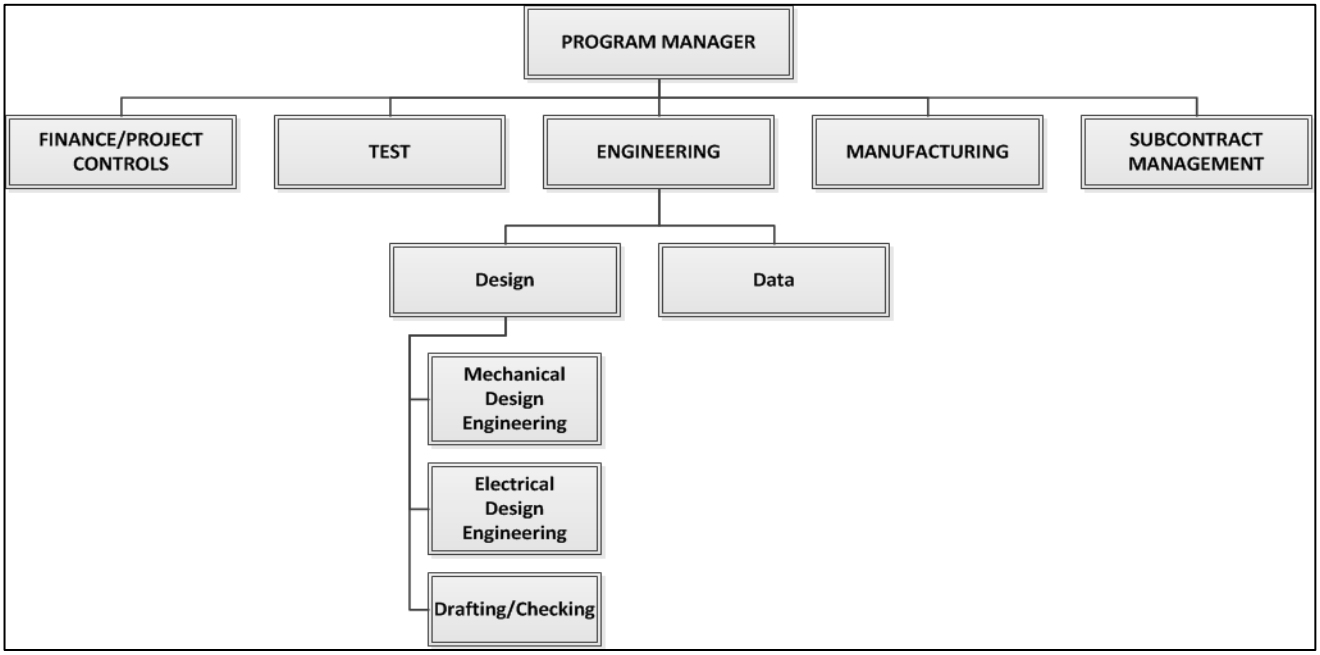
Purpose of Guideline: To ensure the functional and/or program organizations responsible for accomplishing program work scope are clearly identified.

Management Value: An effective program organization, defined at the onset of the contract, enhances management control of technical, schedule and cost execution. Establishing and maintaining an OBS helps management focus on forming the most efficient organization by taking into consideration availability and capability of management and technical staff, including subcontractors, to achieve the program objectives.

Intent of Guideline: The OBS displays the organizational relationships that are responsible for managing resources assigned to a program. It identifies which managers in the contractor's organizational structure are responsible for executing a specific scope of work consistent with their internal organizational structure of departments, units, teams, and/or subcontractors. An OBS is a direct representation of the hierarchy and provides a description of the organizations roles and responsibilities for each segment of work, including subcontracted and inter-organizational efforts. The program manager uses a program OBS to reflect the assignment of management accountability and authority for all work supporting program objectives.

There are multiple types of program organizations, e.g., program teams, project matrix organizations, Integrated Product Teams (IPTs), functional organizations, etc. When designating the internal organization responsible for managing the program efforts, the contractor must assign a manager with sufficient authority and responsibility to ensure performance of the authorized work. The manager assigned to subcontractor work must have full responsibility for the authorized work. Figure 3 illustrates an example of an OBS; however, there are multiple methods of structuring an OBS.

Figure 3: Example Program OBS



Note: Figure is notional; there are multiple ways to structure an organization to manage a program.

Attributes

- A single OBS exists that contains all of the organizational elements, including major subcontractors and inter-organizational units, necessary to execute the contract.

Typical Work Products

- Program Organizational Chart (to include functional management when applicable)/OBS
- Documented Roles and Responsibilities (prime and major subcontractor(s))
- List of major subcontractors/intra-divisional work orders with Earned Value Management System flowdown
- Integrated Program Management Report (IPMR)

2.3 Guideline 3: Integrate Subsidiary Management Processes

EVMS Category: Organization	
EIA Standard Guideline: 2.1c	**Integrate Subsidiary Management Processes**

Provide for the integration of the planning, scheduling, budgeting, work authorization and cost accumulation processes with each other, and as appropriate, the program work breakdown structure and the program organizational structure.

DoD Strategic Intent

Purpose of Guideline: To ensure the contractor establishes an interconnection among the contractor's enterprise management systems (e.g., accounting, scheduling, estimating, procurement, Manufacturing/Enterprise Resource Planning (M/ERP) System, time card management systems, etc.) into an integrated framework required for effective program management.

Management Value: The integration of planning, scheduling, budgeting, work authorization, and cost accumulation management processes provides the capability for establishing the Performance Measurement Baseline (PMB), identifying work progress, and collecting actual costs, thereby facilitating management analysis and corrective actions. Having integrated management systems and common data elements helps ensure the availability of reliable program information needed to support all levels of management insight and control.

Intent of Guideline: The integration of separate and interdependent management systems, processes and operating procedures enables consistent and relatable data across the enterprise management systems and the Earned Value Management System (EVMS). Through coding structures that use unique IDs and common data elements or a simple mapping method, the contractor's planning, scheduling, budgeting, work authorization, and cost accumulation processes are integrated. This will allow the data derived from one system to relate to and be consistent with the data of each of the other systems at the control account level through the total contract level. M/ERP Systems in a production environment are widely used for planning, scheduling, dispatching/authorizing, and statusing work. Unique coding structures are established to interface between the material control system and the EVMS to support the transfer of data. The resulting integration of technical, cost and schedule data enables program management to effectively manage and control execution of the program work scope. The system must integrate subcontractor data.

Attributes

- The planning, scheduling, budgeting, work authorization and cost accumulation systems are integrated with each other via a common coding structure and, as appropriate, with the Contract Work Breakdown Structure (CWBS) and the Organizational Breakdown Structure (OBS) at Control Account (at a minimum) through the total contract level.

Typical Work Products

- Data item matrix describing the unique coding structure that defines the common data elements that link the management systems.
- Data-related products that relate to the unique coding structures.
    - Management reports from cost tool

- Integrated Master Schedule (IMS)
- Subcontractor Integrated Program Management Report (IPMR)/IMS
- Mapping of EVMS data from subcontractor to/from prime

2.4 Guideline 4: Identify Overhead Management

EVMS Category: Organization	
EIA Standard Guideline: 2.1d	**Identify Overhead Management**
Identify the organization or function responsible for controlling overhead (indirect costs).	

DoD Strategic Intent

Purpose of Guideline: To ensure the program manager understands who within the company structure is responsible for establishing, approving, managing, controlling, and assigning resources to overhead (indirect costs) budgets.

Management Value: Visibility into indirect costs is essential for successful management of a program. The impact of indirect costs on any program must be accounted for and managed. It is important, therefore, to have processes documented and organizations established specifically to manage and control indirect costs. This will help the program manager effectively manage and control execution of overall program objectives.

Intent of Guideline: The contactor must clearly identify the management position that is assigned the responsibility and authority for controlling indirect costs and that has the authority to approve the expenditure of resources. It is necessary to have an indirect budgeting and forecasting process since indirect costs account for a major portion of the cost on any program. As indirect costs can significantly impact the cost of a program, it is important for the program manager to know who is responsible for authorizing and controlling overhead (indirect) budgets and expenditures.

Attributes

- There is an indirect account organization structure with designated manager(s) that have authority to implement documented processes that clearly define resource assignment, budget establishment and control for indirect costs.

Typical Work Products

- Organization chart identifying managers responsible for indirect cost control
- Contractor's Cost Accounting Standards Board (CASB) Disclosure statement

2.5 Guideline 5: Integrate WBS/OBS to Create Control Accounts

EVMS Category: Organization	
EIA Standard Guideline: 2.1e	**Integrate WBS/OBS to Create Control Accounts**

Provide for integration of the program work breakdown structure and the program organizational structure in a manner that permits cost and schedule performance measurement by elements of either or both structures as needed.

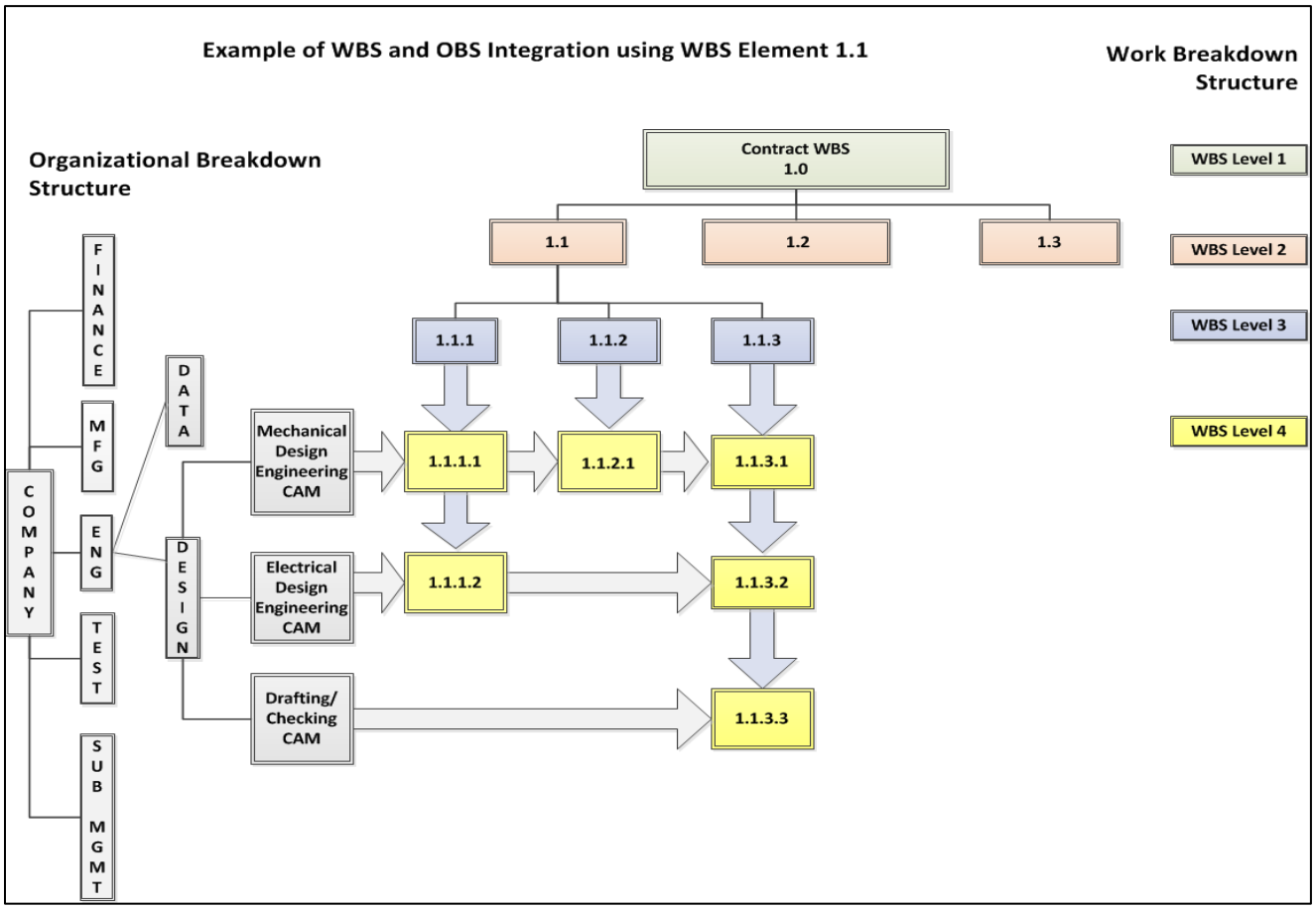
DoD Strategic Intent

Purpose of Guideline: To determine responsibility for a specific scope of work and facilitate schedule and cost performance measurement in an Earned Value Management System (EVMS). The intersection of the Work Breakdown Structure (WBS) and Organizational Breakdown Structure (OBS) establishes the control accounts which are the focal point for work authorization, management, and performance measurement.

Management Value: The careful establishment of the control account structure ensures the proper level of management where one organization has clear responsibility for the effort. Establishment of control accounts should consider the complexity of the work and the efficiency of the organization. Control accounts are the optimal points in the EVMS where managerial control, performance measurement, and responsibility for corrective action exist.

Intent of Guideline: The intersection of the WBS and the OBS represents where the control account is established. That intersection is necessary to understand the assigned responsibility for managing, controlling, and facilitating the allocation of resources to the work scope and permits cost accumulation and performance measurement. (See Figure 4: Integration of the WBS and OBS). There may be one or more responsible organizations supporting a single WBS or multiple control accounts within one OBS element. Generally, this occurs when the work within a WBS element must be segregated for management control purposes that are driven by scope and exit criteria (i.e., completion of the effort). Establishment of control accounts should consider the complexity of the work and the efficiency of the organization. This structured approach assists the program manager with assigning responsibility and authority for performing the work scope contained in the WBS. Each control account is assigned to a manager who is designated as the Control Account Manager (CAM). The CAM is responsible for ensuring the accomplishment of work in the control account and is the focal point of management control.

Figure 4: Integration of the WBS and OBS



Note: Not all control accounts are at same WBS level as depicted in this notional example.

Attributes

- Each control account is assigned to a single organizational element directly responsible for the work identifiable to a single element of the WBS. One or more control accounts are visible at the intersection of the WBS and responsible OBS.

Typical Work Products

- Responsibility Assignment Matrix (RAM)
- Management reports from cost tool

3 EVMS GUIDELINES: PLANNING, SCHEDULING, AND BUDGETING CATEGORY (Guidelines 6 – 15)

The focus of the Planning, Scheduling, and Budgeting category is to develop plans and strategies to achieve the desired program cost, schedule, and technical objectives. This includes the identification of short- and long-term resource needs. The ten guidelines (6 – 15) that comprise this category set the foundation for integrating scope, schedule, and budgets into a baseline against which accomplishments will be measured. This baseline, called the Performance Measurement Baseline (PMB), is a dollarized time-phased plan established primarily at the control account level and reflects how the contractor intends to use its resources to accomplish all the authorized work (Guidelines 8 and 9). The PMB provides the government and the contractor a common reference point for discussing program progress and status (Guideline 15).

Integral to establishing the PMB is the use of an integrated network schedule (Guidelines 6 and 7). The guidelines in this category require development of an integrated network schedule that establishes and maintains a relationship between technical achievement and progress status. The schedule provides visibility into the accomplishment of the tasks required for execution of the contractual scope of work and is the basis for creating the PMB.

The guidelines further establish the planning parameters associated with the PMB including:

- Establishing the Contract Budget Base (CBB), including authorized unpriced work. (See Reference (o) for more detailed information regarding implementation of an Over Target Baseline/Over Target Schedule.) (Guideline 8.)
- Using Summary Level Planning Packages (SLPP) for effort that cannot yet be detail planned at the control account level (Guideline 8).
- Authorizing work and identifying significant elements of cost (labor, material, other direct costs) (Guideline 9).
- Partitioning control account work scope into work packages for near-term effort and/or planning packages for effort outside the current planning window (Guideline 10).
- Applying the most appropriate earned value measurement technique to ensure progress reported against the PMB provides reliable performance data (Guidelines 10 and 12).
- Ensuring the budgets of work packages and planning packages sum to the total budget authorized for that control account (Guideline 11).
- Ensuring the PMB includes overhead budgets (Guideline 13). And,
- Using Undistributed Budget (UB) for contractually authorized work scope that has not yet been assigned to an organizational element at or below the Work Breakdown Structure reporting level (Guideline 14).

Allowance is made for a portion of the CBB to be withheld outside of the PMB as Management Reserve (MR) for internal management control purposes. MR is intended to provide the contractor with budget to manage risk within the established contract scope. (Guideline 14.) Lastly, the guidelines emphasize maintaining the integrity of the PMB by ensuring the sum of lower level budgets in the PMB does not exceed the total time-phased budget and all internal program budgets and management reserves reconcile to the contractual target cost (Guideline 15).

Subsections 3.1 through 3.10 describe DoD's interpretation of the intent of each of the ten Planning, Scheduling, and Budgeting guidelines and expectations for implementing each guideline.

3.1 Guideline 6: Scheduling Work

EVMS Category: Planning, Scheduling, and Budgeting	
EIA Standard Guideline: 2.2a	**Scheduling Work**
Schedule the authorized work in a manner which describes the sequence of work and identifies significant task interdependencies required to meet the requirements of the program.	

DoD Strategic Intent

Purpose of Guideline: To provide program management with a fully integrated, networked, and time-phased plan that provides visibility into the detailed progress and accomplishment of the milestones and tasks required for execution of the authorized scope of work.

Management Value: A fully-integrated schedule facilitates the establishment of a valid Performance Measurement Baseline (PMB). Scheduling authorized work facilitates effective planning, statusing, and forecasting, which are critical to the success of a program. This is accomplished through a fully networked Integrated Master Schedule (IMS) and is a foundational component in the establishment of a valid PMB. This provides the ability to produce a critical and driving paths and allows program management to evaluate and implement actions designed to ultimately complete the program effort within contractual parameters. Adequately integrating schedule data enables program management to use the schedule for time-based analyses and schedule risk assessments (SRA), both of which are critical to the success of meeting program commitments. An integrated network schedule provides program management a comprehensive status of authorized work scope and facilitates the timely tracking and communication of program performance.

Intent of Guideline: A properly functioning schedule provides program management insight into the program's progress and its planned and forecasted duration. The schedule is the basis for projected cost to complete. The IMS is the networked schedule that establishes a logical sequence of work that leads through key milestones, events, and/or decision points to completion of program objectives. It contains all authorized discrete work for organizational elements, including subcontractors, responsible for performing the work consistent with the Work Breakdown Structure (WBS) and the Organizational Breakdown Structure (OBS). When an Integrated Master Plan (IMP) is contractually required, the schedule structure should correlate with the information in the IMP. In the event Level of Effort (LOE) is included in the IMS, it shall not impact discrete work or the calculation of the critical and driving paths. The logical sequence of the schedule must be horizontally and vertically integrated and reflects interdependencies between tasks/activities and/or work package and planning package levels as appropriate for the work that determines the critical path. (See Figure 5: Horizontal and Vertical Schedule Integration.)

Production programs are often planned using inputs from a Manufacturing/Enterprise Resource Planning (M/ERP) System that include the detailed efforts (work orders, production orders, work bills, etc.) used to manage the procurement and assembly of material with the associated labor. These systems are used as the basis for planning and statusing the detailed efforts which are aggregated, with the appropriate interdependencies and sequencing preserved, within the network schedule (IMS), minimally at the work package level, for critical path analysis. (See Figure 6: Relationship between IMS and Manufacturing/Enterprise Resource Planning (M/ERP) System.)

Schedule Visibility Tasks (SVTs), if used, must be separately identified and controlled to represent non-PMB activities that could impact the logic driven network. Schedule margin is a management method for accommodating schedule contingencies and should be clearly identified in the IMS.

Schedule progress is updated and statused in accordance with the business cycle, but no less than monthly. Scheduling status process shall include the following:

- Identification and assessment of actual progress against the plan.
- Generation of the critical path, near-critical paths, and driving paths.
- Incorporation and progress of risk management activities and mitigation actions.

Figure 5: Horizontal and Vertical Integration in the IMS

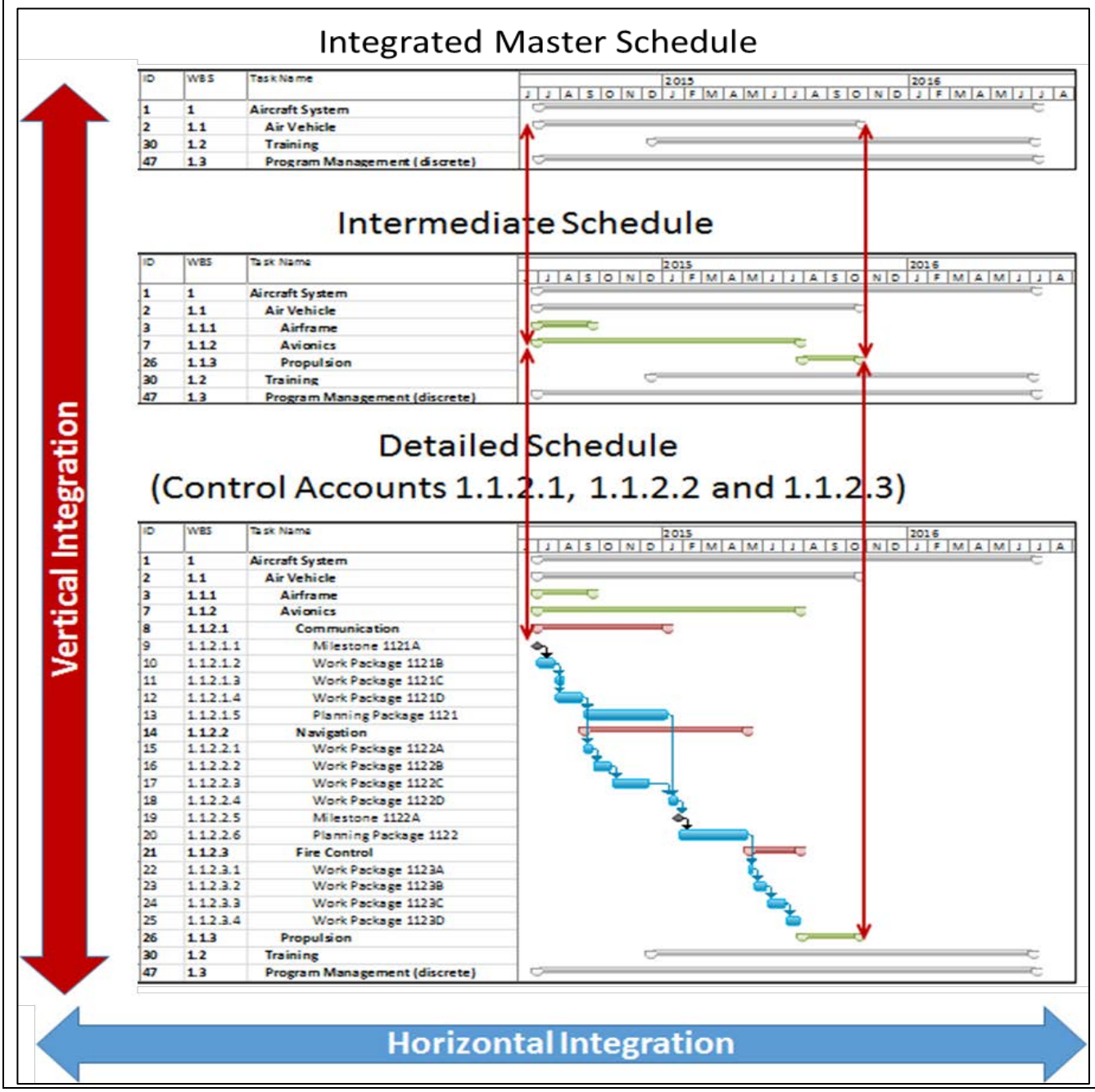
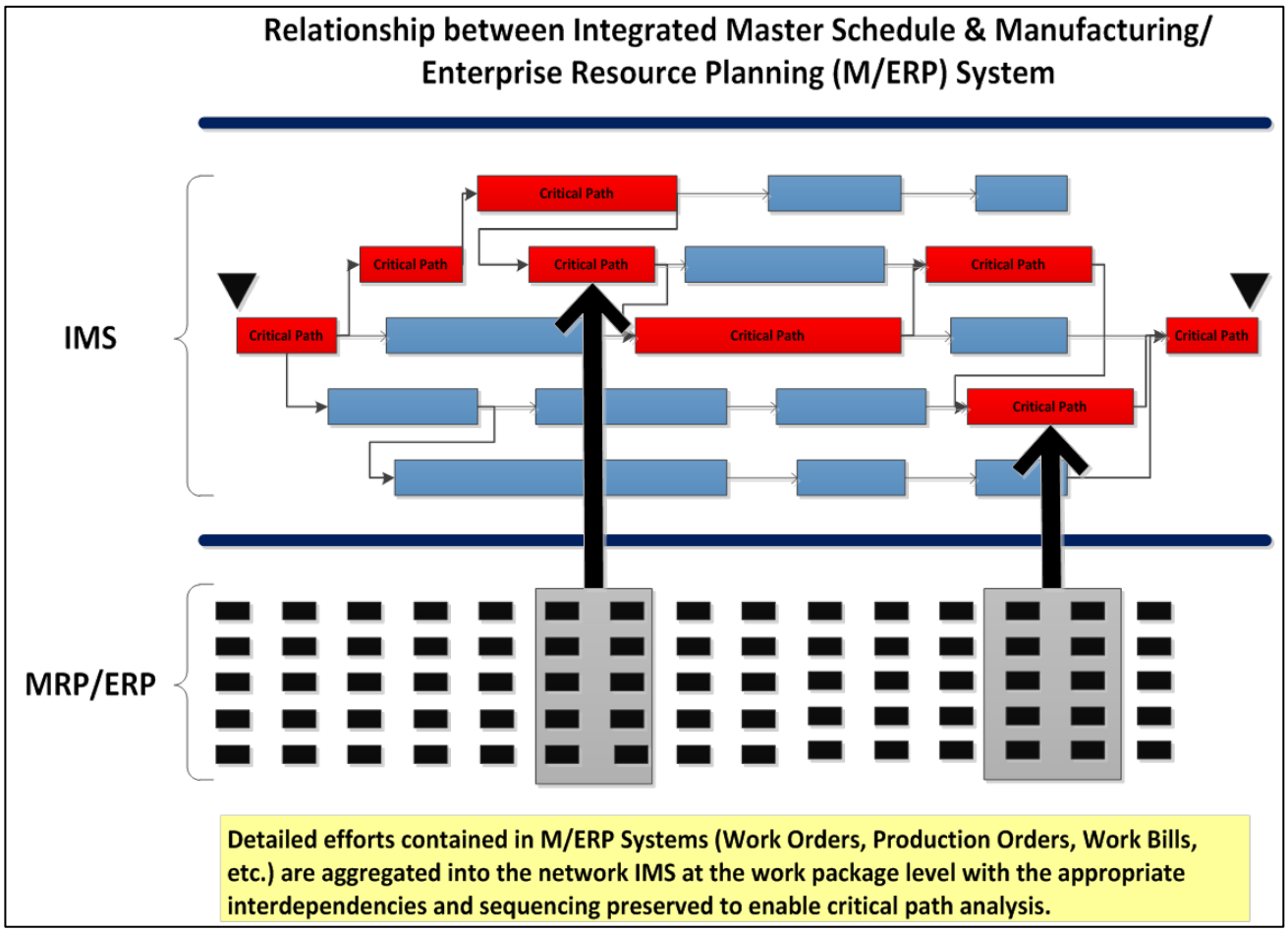


Figure 6: Relationship between Integrated Master Schedule & M/ERP System



Attributes

- The IMS reflects all authorized, time-phased discrete work to be accomplished including subcontracted effort and critical and/or high value material.
- The network schedule/IMS depicts the sequence of work (horizontal integration) and clearly identifies the significant interdependencies that are indicative of the actual way the work is planned and accomplished.
- There is vertical schedule integration, i.e., there is consistency of data between various levels of schedules, including subcontractor schedules, and all levels of schedules support the contract/program schedule requirements (e.g., Statement of Work, design build specification, Integrated Master Plan (IMP) etc.).
- Program milestones, contractual events, program decision points and external dependencies must be logically linked within the network schedule/IMS to support critical path analysis.
- The schedule provides baseline, forecast, and actual dates.

Typical Work Products

- Internal schedules and/or IMS
- Risk/Opportunity Register (evidence of risk mitigation handling plan in the IMS)
- SRA

- IMP
- Control account plan
- Work authorization documentation
- M/ERP System outputs

3.2 Guideline 7: Identify Products and Milestones for Progress Assessment

EVMS Category: Planning, Scheduling, and Budgeting	
EIA Standard Guideline: 2.2b	**Identify Products and Milestones for Progress Assessment**

Identify physical products, milestones, technical performance goals, or other indicators that will be used to measure progress.

DoD Strategic Intent

Purpose of Guideline: To ensure program schedule(s) establish and maintain a relationship between technical achievement and progress statusing and provide objective performance data that accurately reflects the progress of the work.

Management Value: A key feature of the vertically and horizontally integrated network schedule is that it establishes and maintains the relationship between technical achievement and progress statusing through time. Interim measures are defined as the detailed schedule is established to ensure performance is measured as objectively as possible. Timely and accurate progress assessments lead to better management visibility into program progress and may be early indicators of program problems and/or opportunities. Identifying objective criteria, linked to technical progress indicators, ensures performance assessments reflect the true technical performance of the program. Early visibility results in management ability to effect timely actions to adjust program directions.

Intent of Guideline: Using objective technical acceptance criteria and performance indicators that are consistent with the work scope contained in the Work Breakdown Structure (WBS) will facilitate meaningful assessments of program accomplishment. Objective technical performance goals and measures are incorporated throughout the schedule hierarchy based on the completion criteria developed for each increment of work, in order to limit subjective measurement of work accomplished. Objectively measured performance data that accurately reflects technical accomplishment of the work provides program management visibility into program progress and credible early indications of program problems and the need to take corrective action. Identifying and selecting appropriate objective completion criteria, that will align with how technical performance will be accomplished, for all discrete work and for each of the program's key events, decision points, and milestones is essential for ensuring accurate schedule status and providing program management actionable information.

Attributes

- Objective completion criteria aligned with accomplishment of the program's technical requirements and goals are determined in advance, documented, and used to plan and measure the progress of program milestones and events.

Typical Work Products

- Internal schedules and/or Integrated Master Schedule (IMS)
- Integrated Master Plan (IMP)
- Contract and modifications
- Control account plan
- Documented technical performance goals

3.3 Guideline 8: Establish the Performance Measurement Baseline

EVMS Category: Planning, Scheduling, and Budgeting	
EIA Standard Guideline: 2.2c	**Establish the Performance Measurement Baseline**

Establish and maintain a time-phased budget baseline, at the control account level, against which program performance can be measured. Initial budgets established for performance measurement will be based on either internal management goals or the external customer negotiated target cost including estimates for authorized but undefinitized work. Budget for far-term efforts may be held in higher level accounts until an appropriate time for allocation at the control account level. If an over-target baseline is used for performance measurement reporting purposes, prior notification must be provided to the customer.

DoD Strategic Intent

Purpose of Guideline: To create a time-phased, resourced plan against which the accomplishment of authorized work is measured. This plan must ensure resources for accomplishing the work are time-phased consistent with the planned work scope for all authorized work. This time-phased relationship between authorized work, time, and resources is referred to as the Performance Measurement Baseline (PMB).

Management Value: The government and the contractor have a common reference point, the PMB, for discussing program progress and success. The accurate reporting of progress against a mutually recognized plan facilitates the implementation of actions by management to maintain or bring the program back on plan. The establishment of realistic budgets, directly tied to the authorized scope of work, is essential for each organization responsible for performing program effort. Also, the establishment and use of the PMB is indispensable to effective performance measurement and it should be in place as early as possible after contract award or Authorization to Proceed (ATP).

Intent of Guideline: The PMB is the time-phased budget plan against which actual performance is assessed. The Contract Budget Base (CBB) value used to establish the PMB is tied to the current value of the contract, including any Authorized, Unpriced Work (AUW). Budgeting is the process of distributing or allocating cost targets to control accounts and summary level planning packages (SLPPs). (See Figure 7: Initial Baseline Planning.)

The process of developing the PMB is initiated at the control account. For future effort that cannot practically be identified to a control account, it is permissible to establish a SLPP above the control account level that identifies scope, schedule, and associated budget to the end of the contract. (See Figure 8: Time Phasing the PMB). These summary efforts should be subdivided into control accounts at the earliest opportunity. Planning horizons may be used to determine the appropriate time period in which to convert SLPPs into control accounts. (See Guideline 29 for further details). The budget for this effort must be identified specifically to the work for which it is intended, time-phased, periodically reviewed for validity, and not used to perform other scopes of work. Eventually, all the work is planned by specific organizational elements to the control account.

Budget tied to authorized scope but not readily identifiable to a specific control account or SLPP can be temporarily placed in Undistributed Budget (UB). (See Guideline 14 for further details.) Budget set aside for known and unforeseen program risks and contingencies is referred to as Management Reserve (MR) and is not included in the PMB. (See Guideline 14 for further details.) The contractor ensures that the resource plan is executable within budget and schedule constraints and is realistic to achieve the contract scope. When applicable, contractors should be able to demonstrate the initial budget distribution at the control account level is consistent with need-by dates and the resources loaded in the Manufacturing/Enterprise Resource Planning (M/ERP) System.

There may be situations when the existing baseline may not represent the actual plan forward due to contract changes, favorable or unfavorable performance, etc. In these cases, it may become necessary for the total budget allocated to the work to exceed the CBB, a condition known as an Over Target Baseline (OTB), and/or for the baseline schedule to exceed contract milestones, a condition known as an Over Target Schedule (OTS). Advance notification to and approval from the customer is essential prior to the implementation of an OTB or OTS. (See Guideline 31 for further details related to OTB/OTS.)

Figure 7: Initial Baseline Planning

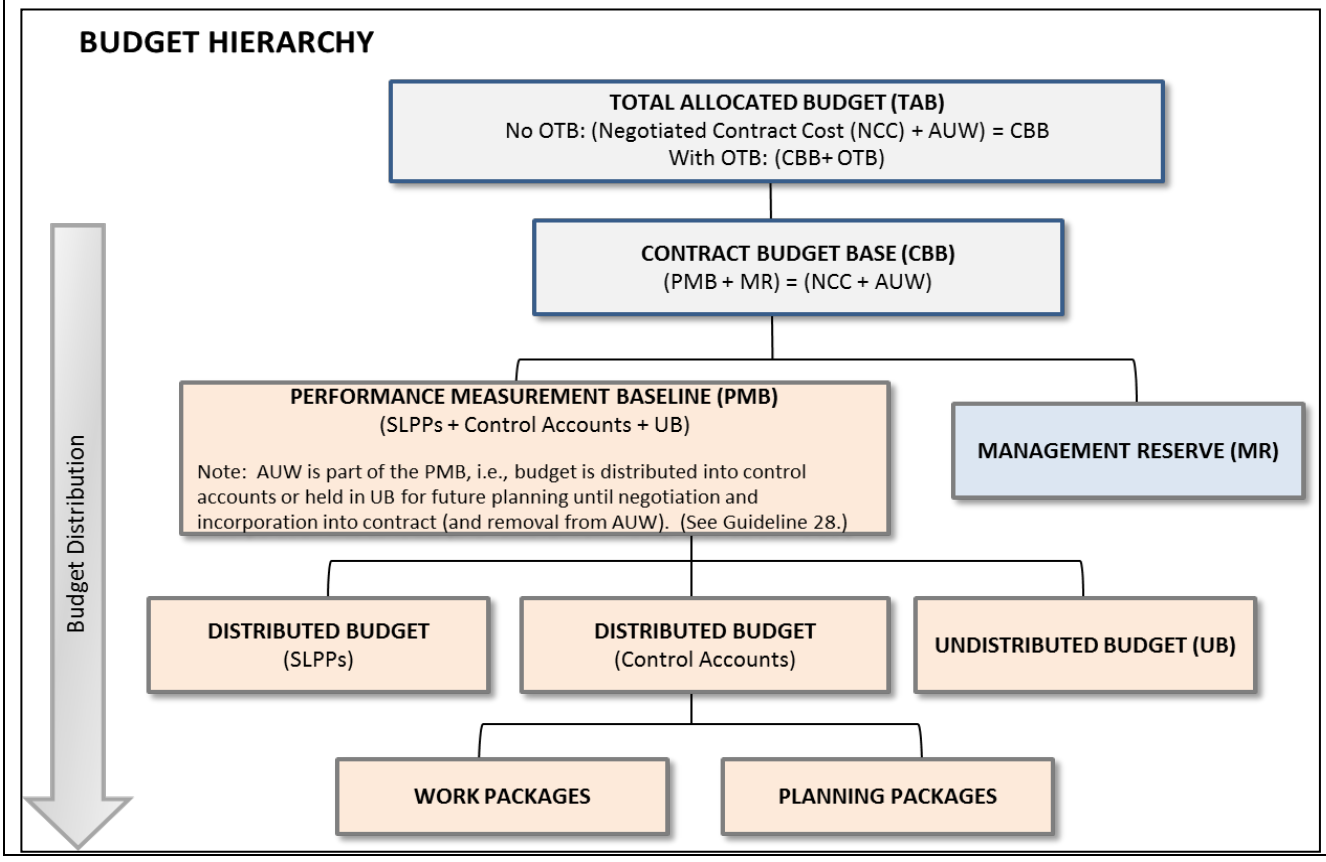
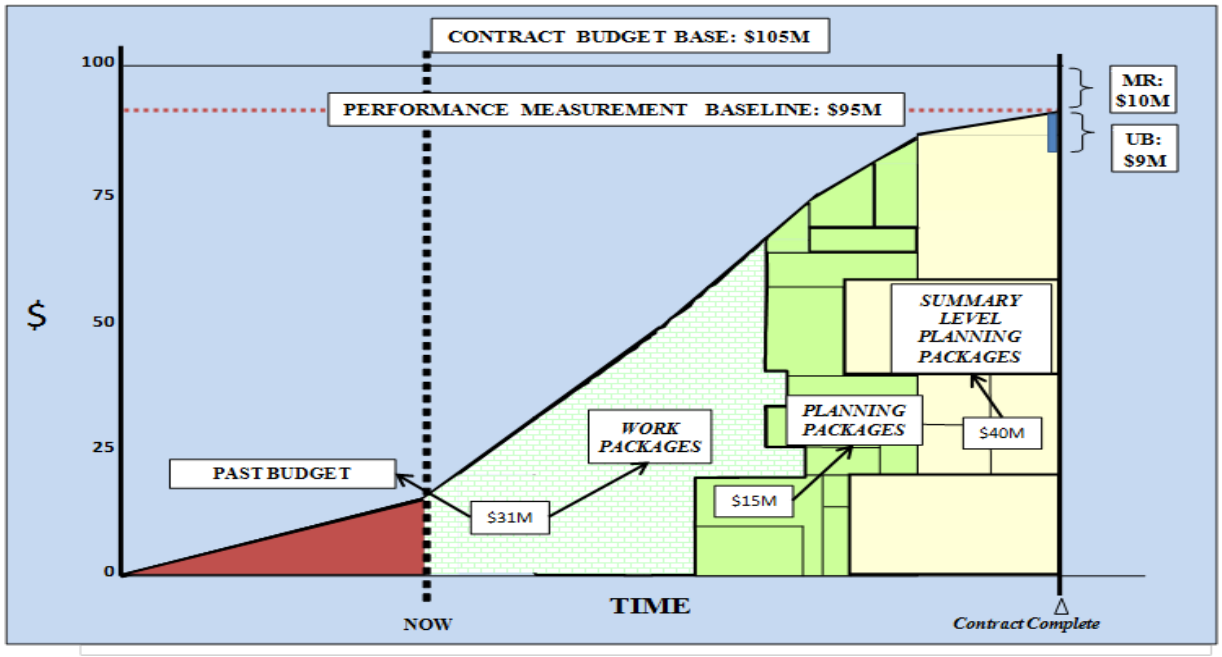


Figure 8: Time Phasing the PMB



Attributes

- The PMB is time-phased in alignment with the Integrated Master Schedule (IMS), with budget distributed in accordance with the accounting calendar for the authorized work scope including all control accounts and SLPPs.
- The time-phased budget baseline reflects the resources planned to perform the authorized work scope and only exceeds the CBB with prior customer authorization of an OTB/OTS.

Typical Work Products

- Control account plans
- IMS
- Budget log reflecting base contract plus all modifications
- Management reports from cost tool
- Integrated Program Management Report (IPMR)
- Basis and Customer approval for OTB/OTS (as applicable)
- Fiscal/accounting calendar

3.4 Guideline 9: Authorize and Budget by Cost Elements

EVMS Category: Planning, Scheduling, and Budgeting

EIA Standard Guideline: 2.2d	Authorize and Budget by Cost Elements

Establish budgets for authorized work with identification of significant cost elements (labor, material, etc.) as needed for internal management and for control of subcontractors.

DoD Strategic Intent

Purpose of the Guideline: To ensure resources, by element of cost, are identified and budgeted for all authorized work.

Management Value: The ability to allocate resources effectively and ensure all required resources are committed and available to the program is enhanced by segregating resource types. Ensuring control account budgets are authorized and planned by elements of cost (EOCs) facilitates management insight into program performance at the resource level. This enables the contractor to more effectively manage and control execution of the control account work scope within schedule and budget constraints.

Intent of Guideline: Through a formal work authorization process, the budget's elements of cost required to execute the control account's scope of work are identified, planned, and documented. Approved work authorization must precede the baseline start and actual start of work. No work shall begin before work is authorized by an initial work authorization. Formally authorizing the work ensures the assignment of program work scope to the responsible organization is clearly documented and the resources required for completing the work are budgeted and acknowledged by the management team prior to commencement of work. Budget is established for work scope which is then further planned by the EOCs for labor, material, subcontractor, and other direct charges required to accomplish it.

Budgets are established by EOC: direct labor, subcontractor, material, and other direct costs. (See Guideline 13 for establishing indirect budgets.) Budgets may be stated in dollars, hours, or other measurable units consistent with the budget values reflected in the control account plans and the latest work authorization documentation. It is necessary to use current rates (i.e., approved, provisional, proposed) when establishing a valid Performance Measurement Baseline (PMB). Control account budgets are time-phased consistent with the program schedule; material budgets are time-phased as appropriate; and subcontractor budgets are time-phased to support program schedule requirements. (See Guidelines 8 and 21 for more information related to time-phasing of material budgets.) Material budgets should be based on the defined/expected quantities needed to meet the requirement (Bill of Material is typically the basis of the budgets). Budget for authorized subcontractor work is based initially on the prime contractor's estimated value and must be updated to reflect negotiations. Authorized subcontracted work must be integrated into the prime contractor's PMB.

Attributes

- Work authorization process/documentation identifies work scope description, budgets segregated by elements of cost (i.e., direct labor dollars/hours, material and/or subcontract dollars, and other direct costs), and period of performance for the authorized effort.

Typical Work Products

- Work authorization documentation
- Control account plans
- Bill of Material/Indentured parts list
- Integrated Master Schedule (IMS)
- Management reports from cost tool

3.5 Guideline 10: Determine Discrete Work and Objective Measures

EVMS Category: Planning, Scheduling, and Budgeting

EIA Standard Guideline: 2.2e	Determine Discrete Work and Objective Measures

To the extent it is practicable to identify the authorized work in discrete work packages, establish budgets for this work in terms of dollars, hours, or other measurable units. Where the entire control account is not subdivided into work packages, identify the far-term effort in larger planning packages for budget and scheduling purposes.

DoD Strategic Intent

Purpose of Guideline: To ensure control account work scope is partitioned into executable and measurable segments of work that are accomplished within the authorized control account period of performance (POP).

Management Value: Work packages and planning packages contain authorized scope and budgets that include specific time-phased resource requirements in dollars, hours, or other measurable units. Additionally, the selection of appropriate earned value techniques (EVTs) will allow for accurate and objective performance measurement. This provides program management accurate status and situational awareness of program execution for proactive resolution of issues impacting cost, schedule, and technical achievement of program objectives.

Intent of Guideline: The control account is the management control point where program cost, schedule and work scope requirements are integrated and managed. Control accounts are decomposed into work packages and planning packages and segregated by elements of cost. In order for the program manager to effectively manage execution of the program within budget and schedule constraints, discrete work packages must be established and objectively measured. Work packages reflect the actual way the work is done and are a clearly distinguishable subdivision of a control account, assignable to a single organizational element and are where the work is planned, technical progress is measured, and earned value is determined. Work package and planning package quantities, sizes and durations within a control account will vary subject to scope, internal management needs, and the size and complexity of the contract. Planning the work in small, manageable segments provides for more accurate performance status as task execution is measured at the working level. Distributing all control account budgets to either work packages or planning packages ensures the Performance Measurement Baseline (PMB) is planned at an executable level that aligns with how meaningful performance measurements will be obtained. A work package/planning package shall not have a budget without an assigned scope of work. Conversely a work package/planning package shall not have authorized scope without associated budget.

Each work package is established using the best method to budget and then measure its progress toward completion. The EVT is established based on how the work is planned (Budgeted Cost for Work Scheduled (BCWS)); and performance (Budgeted Cost for Work Performed (BCWP)) is earned consistent with the EVT. Based on the nature of the work contained in work packages, an appropriate EVT is identified for use in measuring work accomplishment. Discrete work is defined as a specific product or service with distinct and measurable outputs that are relatable to the program's technical objectives. These measureable outputs are where program status can be measured objectively. Examples of measureable products or outputs include design efforts, a tool design package, a build-to-package, a shop order, a part number, a purchase order, or any other definable product. The objective is for the contractor to identify and plan the authorized work within a control account using discrete, short-spanned work packages comprising all the measurable efforts. Where

long-duration work packages are unavoidable, interim milestones representing measurable, technical accomplishment are required for performance measurement.

The concept of "apportioned effort" may be used when work of a supporting nature ties directly to a discrete technical activity. Apportioned effort is work that is not readily measured or divisible into discretely planned work packages but is directly proportional to the planning and performance of other discretely planned work. If the contractor chooses to use this technique, the Earned Value Management System documentation must cover the requirements for the use of this measurement technique and the need to document the factor used to establish the relationship; i.e., a direct, historical relationship between the base effort and the apportioned effort. It must also point out that the progress identified in the base account (percent complete) provides the progress percentage for the apportioned account.

Level of Effort (LOE) is defined as being of a general or supportive nature, with no measurable output, product, or activities; for which the attempt to measure progress is not practicable. Work packages for LOE must have budgets and work scope supported by sound rationale and time-phased to properly reflect when the work will be accomplished. LOE and discrete effort must be in separate work packages. When work packages planned as either discrete or LOE are commingled within a control account, the contractor must identify proper controls to limit the amount of LOE and the potential for distortion of performance and variance analysis. (See Guideline 12 for additional information on LOE.)

Budgets for material, to include high value production and/or critical material, are planned discretely using objective milestones or other rational basis for measuring the amount of material consumed. Material is segregated from other elements of cost, planned in support of the need dates for the material items, and time-phased by dollar amount suitable for the type of material category. Contractors must conduct an analysis in order to identify and differentiate categories of material, planning method, and the associated EVT. This analysis must distinguish between material and subcontracted effort. (See Guideline 21 for further information on material EVTs.) For subcontracted efforts, the prime contractor is responsible for ensuring subcontract work scope and associated time-phased budgets are consistent with the subcontractor baseline plan, and that subcontractor and prime contractor baseline plans are integrated and traceable.

When authorized control account work scope cannot be planned in the near-term, a planning package is used for holding the scope, schedule, and budget until the work is detail planned into work packages. The planning package is time-phased with the known schedule requirements and is detail planned into work package(s) at the earliest practicable point prior to any work performed on the scope contained in the planning package. The budget for this effort must be identified specifically to the work for which it is intended, time-phased, periodically reviewed for validity, and not used to perform other scopes of work. As near-term work is more detailed than that of work scope contained in planning packages, there is a periodic detail planning process in place to convert Summary Level Planning Package (SLPP) into control accounts and control account planning packages into work packages (or lower level tasks/activities). In order to solidify the PMB for accurate performance measurement, it is necessary to establish a freeze period. During the freeze period, changes to the PMB are limited to maintain its integrity. At a minimum, detail planning of planning packages must occur prior to the commencement of that work within the freeze period. (See Guideline 29 for more information on rolling wave process and freeze period.)

Attributes

- Work packages have the following characteristics:
  - Represent the scope of work at the level where work is performed or aggregated.
  - Are clearly distinguishable from all other work packages.
  - Are assigned to a single organizational element.

- Include scheduled start and completion dates; and as applicable, interim milestones, all of which are representative of technical accomplishment.
- Have a time-phased budget or value expressed in terms of dollars, labor hours, or other measurable units that is substantiated in terms of supporting project plans.
- Have durations that are limited to a relatively short span of time that is practical for the work scope. Longer-duration work packages need objective interim measures, such as points of technical achievement, to enable accurate performance assessment.
- Are identified within the Integrated Master Schedule (IMS) and other supporting schedules.

- Other work package planning requirements include:
  - Material is segregated from other elements of cost, planned in support of the need dates for the material items, and time-phased by dollar amount suitable for the type of material category.
  - Establishment of EVTs for material shall be consistent with the manner in which material is planned.
  - Subcontract effort is identified (as applicable) and time-phased consistent with subcontractor baseline plans.

- Planning packages have the following characteristics:
  - Are the logical aggregations of work within a control account, normally the far-term effort that can be identified, budgeted, and time-phased in baseline planning, but cannot yet be detail planned into work packages.

Typical Work Products

- Control account plans
- Objective plan for substantiating the value of work claimed as progress
- IMS
- Management reports from cost tool

3.6 Guideline 11: Sum WP/PP Budgets to Control Account

EVMS Category: Planning, Scheduling, and Budgeting

EIA Standard Guideline: 2.2f	Sum Work Package (WP) and Planning Package (PP) Budgets to the Control Account Budget

Provide that the sum of all work package budgets plus planning package budgets within a control account equals the control account budget.

DoD Strategic Intent

Purpose of Guideline: To maintain the integrity of the Performance Measurement Baseline (PMB), the budgets of the work packages and planning packages shall sum to the associated control account's authorized Budget at Completion (BAC).

Management Value: The work package and planning package budgets accurately summarize to the control account (scope, schedule, resources/budgets) and are the same value that is time-phased into work packages and planning packages. The benefit of proper summarization results in a program plan that correlates with the contract requirements and, therefore, provides a common reference point for government-contractor discussions and for accurate progress assessments. It avoids the over or under allocation of program budgets.

Intent of Guideline: It is important to the overall integrity of the PMB that control account budgets are planned and summarized accurately. The control account is the management control point at which the program manager will analyze program performance by comparing actual performance to the planned budgets. All control accounts contain the budget that represents the work scope assigned to the responsible organization. The value of the budgets for individual work packages and planning packages within the control account will sum to the total budget authorized for that control account.

Attributes

- The sum of all work package budgets plus planning package budgets within control accounts equals the budgets authorized for those control accounts.

Typical Work Products

- Control account plans
- Management reports from cost tool
- Work authorization documentation

3.7 Guideline 12: Level of Effort Planning and Control

EVMS Category: Planning, Scheduling, and Budgeting	
EIA Standard Guideline: 2.2g	**Level of Effort Planning and Control**

Identify and control level of effort activity by time-phased budgets established for this purpose. Only that effort which is not measurable or for which measurement is impracticable may be classified as level of effort.

DoD Strategic Intent

Purpose of Guideline: To ensure Level of effort (LOE) is limited only to those activities that should not or cannot be discretely planned. Classification of work scope as LOE is limited to activities that have no practicable, measurable output or product associated with technical effort that can be discretely planned and objectively measured at the work package level.

Management Value: In every program there are tasks accomplished that, by their nature, are unmeasureable. Prudent use of LOE is necessary to minimize the distortion of performance data for effective program management. The need to look at each effort on the program and determine if there is a way to measure progress towards its completion leads to a Performance Measurement Baseline (PMB) that provides accurate information to management for program decision-making.

Intent of Guideline: A fundamental expectation of an Earned Value Management System (EVMS) is that objective and actionable information on program status is generated and used as the basis for making logical, well-informed program management decisions. LOE is defined as having no practicable, measurable output or product that can be discretely planned and objectively measured at the work package level. LOE activities are typically administrative or supportive in nature and may include work in areas such as program management, contract administration, financial management, security, field support, help desk support, clerical support, etc. In determining whether LOE as an earned value technique (EVT) is appropriate, an understanding of the nature of the work is imperative rather than setting a threshold for the amount of LOE allowed. The nature of LOE is such that the Budgeted Cost for Work Performed (BCWP) reflects only the passage of time during which LOE activities are planned; there is never a Schedule Variance (SV), i.e., BCWP always equals Budgeted Cost for Work Scheduled (BCWS). Therefore, LOE is limited only to those activities that are unable or impracticable to be measured discretely in order to ensure accurate overall progress assessment.

Work packages shall be separately planned as either LOE or discrete to facilitate accurate insight into performance and variance status. (See Guideline 10 for additional information related to work packages.) Baseline start and finish dates for work packages planned as LOE must be proactively managed to ensure variances do not result from failure to maintain the plan. (See Guideline 29). The incorrect application of LOE may distort performance status. Care must be taken to ensure when a control account contains work packages planned with both discrete and LOE, the contractor must establish controls to minimize any potential distortion of control account performance and variance analysis.

Attributes

- Work packages planned as LOE contain efforts of a general or supportive nature that do not produce technical content leading to an end item or product.
- Work packages planned as LOE must be separately evaluated from discrete within the control account.
- Work packages for LOE must have budgets and work scope supported by sound rationale and time-phased to properly reflect when the work will be accomplished.

Typical Work Products

- Control account plans
- Work authorization documentation
- Integrated Master Schedule (IMS)
- Work Breakdown Structure Index & Dictionary
- Management reports from cost tool
- Government requirements document (e.g., Statement of Work (SOW), Build Specifications)

3.8 Guideline 13: Establish Overhead Budgets

EVMS Category: Planning, Scheduling, and Budgeting	
EIA Standard Guideline: 2.2h	**Establish Overhead Budgets**
Establish overhead budgets for each significant organizational component of the company for expenses that will become indirect costs. Reflect in the program budgets, at the appropriate level, the amounts in overhead pools that are planned to be allocated to the program as indirect costs.	

DoD Strategic Intent

Purpose of Guideline: To ensure indirect budgets (e.g., Overhead, General & Administrative, and Cost of Money) are established and included in the Performance Measurement Baseline (PMB) at the appropriate level for visibility.

Management Value: The overall value of establishing indirect budgets lies in the ability of contractor management to manage costs that cannot be directly assigned to individual cost objectives. By comparing actual indirect expenses to established indirect budgets, the contractor can determine if the absorption of indirect expenses based on existing documented allocation schemes is on track or if allocation rates require adjustment. It is critical to the contractor that, at the end of the accounting year, all indirect expenses are allocated. The accurate assignment of indirect budgets, therefore, ensures that each program is allocated only its fair share of indirect costs.

Intent of Guideline: Program indirect costs are for common activities that cannot be identified specifically with a particular program or activity and are budgeted and controlled separately at the functional or organizational manager level. (See Guideline 4.) Indirect budgets play an important role in budgetary control and management and can account for a major portion of the cost of any program. The overall value of establishing indirect budgets lies with the ability of the contractor to manage cost elements that cannot be directly assigned to individual programs or program tasks and ensures that indirect costs allocated to programs are applied fairly and appropriately. Without this budgeting requirement, the PMB would not accurately measure total cost to the government based on contractor performance/progress.

Indirect budgets are established at the appropriate organizational level for each pool and cost sub-element. Program-specific budgets for indirect costs are developed and planned in conjunction with the direct budgets and must be consistent with the contractor's documented procedures for how indirect costs are approved and allocated to the program (Figure 9: Example of Application of Indirect Rates to Direct Costs).

Figure 9: Example of Application of Indirect Rates to Direct Costs

Cost Category	Direct Costs	Indirect Costs	Total Cost
Labor (100 Hours @ $75/Hour)	$7,500		$7,500
Labor Overhead ($110/Hour)		$11,000	$11,000
Total Labor Costs (Direct & Indirect)			**$18,500**
Material	$25,000		$25,000
Material Overhead (5%)		$1,250	$1,250
Total Material Costs (Direct & Indirect)			**$26,250**
Other Direct Cost	$500		**$500**
Total Direct & Indirect Costs	$33,000	$12,250	**$45,250**
General & Administrative Costs (20%)			**$9,050**
Total Costs (Fully Burdened)			**$54,300**

Attributes

- Indirect budgets are established and projected, annually at a minimum, based on published rates for each organization which has authority to incur overhead costs.
- Indirect budgets are incorporated into the PMB in concert with described processes and current rates (i.e., approved, provisional, proposed).

Typical Work Products

- Contractor's Cost Accounting Standards Board (CASB) Disclosure Statement
- Forward Pricing Rate Agreement and/or Forward Pricing Rate Proposal
- Indirect cost policies and procedures
- Internal program reports with indirect budgets
- Integrated Program Management Report (IPMR)
- Management reports from cost tool

3.9 Guideline 14: Identify MR and UB

EVMS Category: Planning, Scheduling, and Budgeting	
EIA Standard Guideline: 2.2i	**Identify Management Reserves (MR) and Undistributed Budget (UB)**
Identify management reserves and undistributed budget.	

DoD Strategic Intent

Purpose of Guideline: To ensure the budgets established for Management Reserve (MR) and Undistributed Budget (UB) are separately identified and controlled.

Management Value: The ability to establish MR allows program management to react to unforeseen in-scope situations that arise during the life of a program. MR is budget for handling program risk and in-scope unanticipated events. MR is not a source of funding for additional work scope or for the elimination of performance variances.

UB is budget that is applicable to specific contractual effort that has not yet been distributed to control accounts or Summary Level Planning Packages (SLPPs). UB may also contain scope subject to removal from the distributed baseline due to contractual changes. Identification of the program's UB, facilitates program management's ability to account for and report on all authorized scope and budget. UB is a transitional budget that should be distributed in a timely manner.

Intent of Guideline: MR and UB serve distinctly different purposes. It is important they are separately identified and traceable through the EVMS.

MR belongs to the contractor Program Manager, not the government, and provides the contractor with a budget for unplanned activities within the current program scope. MR enables program management to respond to future unforeseen events within the work scope of the program by distributing budget to mitigate program risks. To establish MR, the contractor's program management sets aside budget based on the program's risk management process and assessment. MR is not associated with a specific scope of work and is not included in the Performance Measurement Baseline (PMB). MR belonging to a major subcontractor must be incorporated into the prime contractor's EVMS with traceability to the subcontractor's reported MR. MR is always reported as a positive value and is set aside for program risks or unplanned events that are in-scope to the contract. Applications of MR to the PMB may be necessary within the contractually authorized work scope (e.g., unforeseen effort that is in-scope to the contract but out of scope to the control account, rate changes if the contractor's EVMS allows discrete work to mitigate risk or recognize realized opportunities, etc.)

UB accommodates contract situations where authorized scope and budget cannot yet be distributed within the PMB to control accounts or SLPPs. UB is part of the PMB and is budget associated with contractually authorized work scope that has not yet been distributed to an organizational element at or below the WBS reporting level. Scope and associated budgets that may reside in UB include:

- Authorized Unpriced Work (AUW),
- Newly definitized work scope,
- Work placed under a "stop work," and
- Work that has been de-scoped but not yet contractually removed from the program.

UB is a short-term holding account where the budget is expected to be distributed into the PMB or removed from the contract. Delays in contract direction may impact the timely distribution of UB into control accounts.

Controlling of changes to the PMB related to MR allocation(s) and UB distribution(s) are addressed under Guidelines 28, 29, and 32. (See Guideline 28 for more information on circumstances when UB remains undistributed over a sustained period of time.)

Attributes

- MR has no scope defined and is separately identified outside of the PMB.
- UB has defined scope, is separately identified, traceable to contractual actions and is part of the PMB.

Typical Work Products

- Program budget control logs
- Integrated Program Management Report (IPMR)

3.10 Guideline 15: Reconcile to Target Costs

EVMS Category: Planning, Scheduling, and Budgeting	
EIA Standard Guideline: 2.2j	**Reconcile to Target Costs**
Provide that the program target cost goal is reconciled with the sum of all internal program budgets and management reserves.	

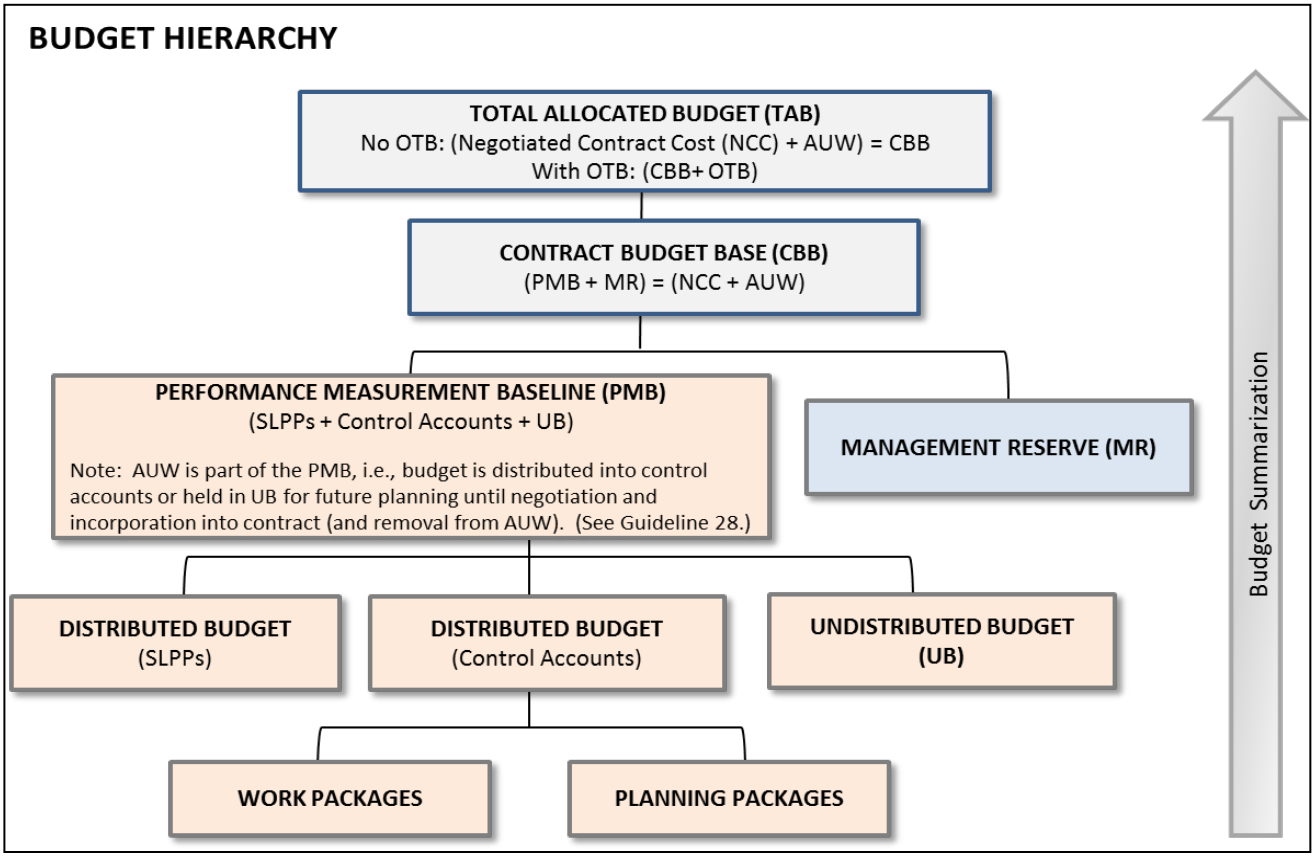
DoD Strategic Intent

Purpose of Guideline: The program's Negotiated Contract Cost (NCC) plus Authorized Unpriced Work (AUW) must reconcile with the Contract Budget Base (CBB)/Total Allocated Budget (TAB).

Management Value: By ensuring that the target cost value is traceable to the sum of the internal budgets and Management Reserve (MR), a common point of reference is established that is fully understood by all parties and supports both performance assessments and funding requirements.

Intent of Guideline: Reconciling the sum of all internal program budgets (control account budgets, Summary Level Planning Packages (SLPPs), and Undistributed Budget (UB)) and MR to the contractually authorized cost establishes a valid comparison to the contract target cost. (See Figure 10: Budget Hierarchy and Summarization.) It is essential for program management to account for all budget authorized for the contractual scope of work. This is demonstrated by reconciling the NCC plus the estimated value of any un-negotiated unpriced-change-orders received to date to the CBB and to the Performance Measurement Baseline (PMB) plus MR to ensure there is consistency. All control account budgets, SLPPs, and UB are summed up to a total value known as the Budget at Completion (BAC) of the PMB. Having validated the sum of the internal budgets, this sum plus MR equals the value known as the CBB. The CBB also equals the TAB unless there is a recognized Over-Target Baseline (OTB). In that case, the TAB must be reconciled to the CBB plus any recognized over target budget. (See Guideline 31 for more information related to OTB/OTS.)

Figure 10: Budget Hierarchy and Summarization



Attributes

- The sum of the control account budgets, SLPP budgets, UB, and MR reconcile and trace to the NCC plus the estimated cost of AUW.
- There is reconciliation of the TAB to the CBB/NCC plus the estimated cost of AUW for any recognized OTB.

Typical Work Products

- Contract and Modifications
- Program budget control logs
- Integrated Program Management Report (IPMR)
- Management reports from cost tool

4 EVMS GUIDELINES: ACCOUNTING CONSIDERATIONS CATEGORY (Guidelines 16–21)

The Accounting Considerations category focuses on ensuring that all direct and indirect costs associated with accomplishing the complete scope of work contained in the contract are properly transferred to the Earned Value Management System (EVMS) at the level of detail required for performance analysis and reconcilable to contract performance reports. All financial transactions are expected to be documented, approved, and recorded properly in the financial accounting system on a consistent and timely basis in accordance with Generally Accepted Accounting Principles (GAAP) and applicable Cost Accounting Standards (CAS). As the EVMS uses direct cost data from the contractor's accounting system to accurately report program costs and to conduct EVM performance and variance analysis, the accounting system is critical to ensuring EVM performance data is reliable and auditable. The primary objective of the six guidelines (16 – 21) that comprise this category is to ensure cost data is accurately collected for a valid comparison to budgets and performance.

The Accounting Considerations guidelines require that the direct costs recorded in a formal and accepted accounting system are reconcilable to the Actual Cost of Work Performed (ACWP) reported in the EVMS. Direct costs are accumulated and charged to control accounts consistent with planned budgets and acceptable costing techniques (Guideline 16.) The guidelines also require actual costs to be accurately accumulated and summarized within the EVMS by the program's Work Breakdown Structure (WBS) and Organizational Breakdown Structure (OBS) elements (Guidelines 17 and 18). All indirect costs allocable to a program must be properly recorded and correctly allocated (Guideline 19).

As applicable, the accounting system must be able to identify unit costs, equivalent unit costs, or lot costs, and distinguish between recurring and non-recurring costs (Guideline 20). Identifying unit costs is typically applicable to production contracts. Acceptable points for measuring material performance are specified and material costs are required to be reported in the same accounting period that performance is claimed. In the event direct costs for work accomplished have not yet been formally recorded in the accounting system, estimated actuals are used for EVM performance reporting and assessment thereby ensuring that any cost variances accurately represent the cost status of the work accomplished (Guidelines 16 and 21). Records showing full accountability for all material purchased for the contract, including residual inventory must be maintained (Guideline 21).

Subsections 4.1 through 4.6 describe DoD's interpretation of the intent of each of the six Accounting Considerations guidelines and expectations for implementing each guideline.

4.1 Guideline 16: Record Direct Costs

EVMS Category: Accounting Considerations

EIA Standard Guideline: 2.3a	Record Direct Costs

Record direct costs in a manner consistent with the budgets in a formal system controlled by the general books of account.

DoD Strategic Intent

Purpose of Guideline: To ensure that the direct costs expended to accomplish a specific, budgeted scope of work are appropriately collected and recorded as required by the contractor's accounting procedures.

Management Value: To support program management, direct costs must be charged to a program consistent with the corresponding budgets in order to achieve effective performance management and Estimate at Completion (EAC).

Intent of Guideline: Accumulating direct costs consistent with how the related work was planned and budgeted facilitates comparison of Actual Cost of Work Performed (ACWP) to Budgeted Cost for Work Performed (BCWP) for performance and variance analysis. The proper collection, recording and transfer of direct costs to the Earned Value Management System (EVMS) establishes a valid comparison with the associated budgeted work performed. This ensures accurate cost variances. The contractor's accounting system provides for accumulation of all direct costs (i.e., labor, subcontractor, material, and other direct costs) incurred in accomplishing the authorized work scope. To ensure ACWP is directly compared with the associated BCWP for performance measurement, the direct cost-charging structure established in the contractors accounting system should map or trace to the control accounts at a minimum. Direct costs are collected at the control account to enable calculation of cost variance information for use in evaluating cost performance and providing cost projections at the level where the work is being performed. The ACWP reported in the performance reports must reconcile with direct costs recorded in the formal accounting system.

In the event direct costs for subcontracted effort and/or material have not yet been formally recorded in the accounting system, estimated costs (estimated actuals) will be used for EVM performance reporting and assessment in the EVMS. This is to address timing differences between the accounting system and performance reports. Once direct costs have been recorded, they will replace the estimated costs (estimated actuals) recorded in the EVMS. This process may be used to project direct costs being removed from the EVMS, such as cost transfers, where the accounting process lags behind the identification of the need. Material direct cost accumulation is further addressed in Guideline 21. All estimated costs (estimated actuals) used for performance reporting will be reconcilable between the General Ledger and the EVMS.

Attributes

- The ACWP in the EVMS can be mapped or traced to the direct costs in the accounting system.
- Direct costs are recorded on the same basis in which budgets were established at the control account level at a minimum.
- The EVMS uses estimated costs (estimated actuals) to account for the costs of work accomplished that have not yet had direct costs recorded in the accounting system.
- Contractor's Cost Accounting Standards Board (CASB) Disclosure Statement identifies treatment of direct costs (material, labor, and other direct costs).
- ACWP and BCWP are recorded in the same accounting period.

Typical Work Products

- Contractor's CASB Disclosure Statement
- Internal cost reports reflecting reconciliation of control account direct costs with the general ledger
- Control account plan
- Management reports from cost tool
- General Ledger
- Work authorization documentation
- Internal control policy and procedures

4.2 Guideline 17: Summarize Direct Costs by WBS Elements

EVMS Category: Accounting Considerations	
EIA Standard Guideline(s): 2.3b	**Summarize Direct Costs by WBS Elements**

When a work breakdown structure is used, summarize direct costs from control accounts into the work breakdown structure without allocation of a single control account to two or more work breakdown structure elements.

DoD Strategic Intent

Purpose of Guideline: To ensure the direct costs reported and analyzed at higher levels of the Work Breakdown Structure (WBS) only reflect the costs associated with accomplishing the scope of work.

Management Value: Accurate cost summarization by WBS element provides management visibility into the current cost of products and services being procured. Accurate accumulation and summarization of direct costs supports effective analysis of performance measurement information and forecasting of potential future costs.

Intent of Guideline: Direct costs are collected, at a minimum, at the control account and summarized to successively higher WBS levels for reporting and performance measurement purposes. To prevent distorting data and related assessments of performance, internal controls are in place to ensure that direct costs collected within control accounts are accurately summarized up through the WBS without being allocated to two or more higher level WBS elements. The charge number structure uniquely relates direct costs to control accounts and facilitates the summarization of costs by the WBS. This practice assures direct costs will be summarized and reported only within a single WBS element. Assurance that accurate cost data is being reported throughout the various levels of the WBS provides program management with the confidence that the data is reliable. Validity of the resulting performance metrics enhances management's ability to make programmatic decisions and properly forecast future costs for the remaining work.

Attributes

- Direct cost shall summarize from the lowest defined level through the WBS hierarchy without allocation to two or more higher level WBS elements.

Typical Work Products

- WBS
- Integrated Program Management Report (IPMR)
- Management reports from cost tool
- Control account mapping

4.3 Guideline 18: Summarize Direct Cost by OBS Elements

EVMS Category: Accounting Considerations

EIA Standard Guideline: 2.3c	Summarize Direct Costs by OBS Elements

Summarize direct costs from the control accounts into the organizational elements without allocation of a single control account to two or more organizational elements.

DoD Strategic Intent

Purpose of Guideline: To ensure the direct costs reported and analyzed at higher levels of the Organizational Breakdown Structure (OBS) only reflect the costs associated with the authorized resources to accomplish work.

Management Value: Accurate cost summarization by OBS element provides management visibility into current costs incurred by organizational elements in production of the products and/or services. Confirmation that direct costs are accurately accumulated and summarized supports management's effective analysis of performance measurement information and forecasting of potential future resource requirements and their costs.

Intent of Guideline: Direct costs are collected, at a minimum, at the control account and summarized to successively higher OBS levels for reporting and performance measurement purposes. To prevent distorting data and related assessments of performance, internal controls are in place to ensure that direct costs collected within control accounts are accurately summarized up through the OBS without being allocated to two or more higher level OBS elements. The charge number structure uniquely relates direct costs to control accounts and facilitates the summarization of costs by the OBS. This practice assures direct costs will be summarized and reported only within a single OBS element. Assurance that accurate cost data is being reported throughout the various levels of the OBS provides program management with the confidence that the data is reliable. Validity of the resulting performance metrics enhances management's ability to make programmatic decisions and properly forecast future costs for the remaining work.

Attributes

- Direct cost shall summarize from the lowest defined level through the OBS hierarchy without allocation to two or more higher level OBS elements.

Typical Work Products

- Program Organizational Chart (to include functional management when applicable)/OBS
- Integrated Program Management Report (IPMR)
- Management reports from cost tool
- Responsibility Assignment Matrix
- Mapping: OBS, WBS, General Ledger, and Project Cost Ledger

4.4 Guideline 19: Record/Allocate Indirect Costs

EVMS Category: Accounting Considerations

EIA Standard Guideline: 2.3d	Record/Allocate Indirect Costs

Record all indirect costs which will be allocated to the program consistent with the overhead budgets.

DoD Strategic Intent

Purpose of Guideline: To ensure all indirect costs are properly and correctly allocated in a consistent manner to the contract(s) that apply and at the level where overhead budgets are established.

Management Value: The potential negative cost impact of poor indirect cost performance to a program mandates that the contractor manage these costs as effectively as possible. The availability of auditable actual indirect costs supports management's efforts in this critical area. A documented process established specifically to provide visibility into the management/control of indirect costs is essential for successful program management.

Intent of Guideline: Allocating indirect costs to a program consistent with the level where overhead budgets have been established facilitates analysis of overhead variances (i.e., budgeted values for indirect costs versus the actual indirect costs allocated) and potential management action(s) to control costs. Policies and procedures should ensure that the allocation of cost to a product, contract, or other cost objective is the same for all similar objectives. Indirect costs are allocated per the contractor's documented procedures to ensure that all programs benefiting from the expenditure of indirect costs are allocated their portion of those costs. If incurred indirect costs vary significantly from budgets, periodic adjustments should be made to prevent the need for a significant year-end adjustment. (See Guidelines 27 and 29.) Indirect Cost allocation processes must ensure management responsibility for indirect cost management is aligned with the authority to manage indirect costs to support effective cost control.

Attributes

- The cost accumulation system provides for the accurate allocation of indirect costs based on documented procedures.
- Indirect costs are accumulated for comparison with the corresponding indirect budgets from the point of allocation to the contract total.
- Indirect rates are updated as necessary to ensure a realistic allocation of indirect costs.
- Contractor's Cost Accounting Standards Board (CASB) Disclosure Statement identifies treatment of indirect costs.

Typical Work Products

- Contractor's Cost Accounting Standards Board (CASB) Disclosure Statement
- Control Account Indirect Cost Reports
- Contractor Budgets and/or Forward Pricing Forecasts
- Forward Pricing Rate Agreement and/or approved billing rates
- Incurred cost reports
- General Ledger

4.5 Guideline 20: Identify Unit and Lot Costs

EVMS Category: Accounting Considerations

EIA Standard Guideline: 2.3e	Identify Unit and Lot Costs

Identify unit costs, equivalent unit costs, or lot costs when needed.

DoD Strategic Intent

Purpose of Guideline: To ensure contractor accounting systems are capable of determining the unit or lot costs of items developed or produced. This is done for cost reporting purposes and to provide visibility into the factors driving program cost growth.

Management Value: Program management and other stakeholders (such as cost estimators) use unit and lot cost information for program cost estimates and to ensure funding is sufficient for the current contract. The periodic evaluation of actual and projected unit and lot costs facilitates this funding assessment. Unit and lot cost information is also used to predict the acquisition cost of future procurements and support budget development. In both cases, the benefit is the continuing ability to acquire the required quantities. For the contractor, this information facilitates the preparation of future bids for like items.

Intent of Guideline: The contractor's accounting system must have the capability to produce unit, equivalent unit, or lot costs for cost reporting purposes. Deriving and analyzing changes in unit cost data, especially during production or manufacturing, provides program management insight into the reasons for cost growth or efficiency, and highlights the need for potential changes in how the program is managing cost and schedule. The accounting system must be able to segregate the costs of production units, lots, or equivalent units by elements of cost (i.e., labor, materials, other direct costs, and indirect costs). Additionally, distinguish between recurring and non-recurring costs as required by internal/external reporting requirements. This will provide program management flexibility to plan, measure performance, and forecast in a more efficient way when there are multiple programs in the production line.

Where it is not practical to determine the individual unit costs of items produced, "lot" costs may be accumulated wherein a "lot" represents an aggregate of a specified and consistent number of units. On production contracts where multiple similar units are produced and delivered to different customers, or when units are randomly removed from the production line to support various customer delivery agreements, "equivalent unit costs" (i.e., all things being equal, each unit's cost is approximately equivalent to every other unit's cost) may be established.

Attributes

- The contractor's system has the capability to provide unit costs, equivalent unit or lot costs in terms of labor, material, other direct costs, and indirect costs as required by the contract.
- Recurring or nonrecurring costs can be identified as necessary or required by the contract.

Typical Work Products

- Accounting records
- Internal reporting
- Manufacturing/Enterprise Resource Planning (M/ERP) System cost collection structure
- General Ledger
- Contractor's Cost Accounting Standards Board (CASB) Disclosure Statement

4.6 Guideline 21: Track and Report Material Cost/Quantities

EVMS Category: Accounting Considerations	
EIA Standard Guideline: 2.3f	**Track and Report Material Costs/Quantities**

For EVMS, the material accounting system will provide for:

1. Accurate cost accumulation and assignment of costs to control accounts in a manner consistent with the budgets using recognized, acceptable, costing techniques.

2. Cost recorded for accomplishing work performed in the same period that earned value is measured and at the point in time most suitable for the category of material involved, but no earlier than the time of actual receipt of material.

3. Full accountability of all material purchased for the program including the residual inventory.

DoD Strategic Intent

Purpose of Guideline: To ensure material costs are accurately collected from the accounting system and transferred to the Earned Value Management System (EVMS) in order to compare those costs with corresponding budgets and completed work. To ensure reliable performance measurement suitable to the material category. To ensure all material items purchased for the contract are accounted for through contract completion and final disposition.

Management Value: The establishment of accurate cost accumulation, performance measurement, and identification of residual inventory is essential since material may comprise a large portion of a contract's costs. Material management must be accomplished in a manner which provides maximum identification of critical or high value material for effective management visibility. To support program management, direct costs for material items must be assigned to a program consistent with the corresponding budgets for that material. This provides the basis for realistic evaluation of cost variances and ultimately facilitates Estimate at Completion (EAC) projections. (See Guidelines 23 and 27.)

Intent of Guideline: Material costs must be accurately accumulated within charge numbers using recognized, acceptable costing techniques. (See Guideline 16.) Unlike other elements of cost, material costs may be reported in the accounting system at various points in the material procurement process (point of receipt to point of payment). The need for accurate comparison of material costs to material budgets and earned value requires that the point of performance and recording of Budget Cost for Work Performed (BCWP) for the material and the transfer of direct costs from the accounting system to the EVMS occur within the same accounting period. Material planning and performance measurement at the suitable point of performance is based upon when the material is needed to meet engineering or manufacturing need-by dates for developing hardware or for optimizing the production facility loading. Material performance is claimed consistent with how material budgets are planned. This point of performance must be established no earlier than the actual receipt of the material items. This prevents the early assessment of progress for material that may ultimately be cancelled and for which earned value would have to be reduced. When consumption and payment occur within the same accounting period, the latest point in time for material progress assessment is at the point of payment. Other points of progress assessment include release from inventory to work-in-progress, receipt (with inspection and acceptance), and delivery to the user (i.e., for direct delivery material).

When direct costs are not available, estimated costs (estimated actuals) must be used to maintain the integrity of the relationship between cost and how budgets were planned and performance was measured. When direct costs

are ultimately recorded in the accounting system, the estimated actuals in the EVMS must be reconciled with or replaced by the recorded direct costs. In the event that direct costs for material are recorded in the contractor's accounting system, but the point of performance for material has not occurred as planned, then the contractor will not transfer the direct costs from the accounting system into the EVMS until the point of performance occurs. This should not be confused with funding projections that need to be otherwise reflected in the contractor's Contract Funds Status Report with reconciliation to the EVMS. (See Figure 11: Notional EVMS and Material Process Relationships.)

A material control system must address the following characteristics for planning material categories and supporting performance measurement:

- Comparison of Actual Cost of Work Performed (ACWP) to material budgets (Budgeted Cost for Work Scheduled (BCWS)) and earned value (BCWP) requires that the appropriate point of performance measurement be established.
- Generally acceptable points for measuring material item performance are:
    - point of receipt, inspection, and acceptance
    - point of stock
    - point of issue to work in process for use in an end item
    - point of issuance directly to the user
- BCWP for high value/critical material items may be claimed upon receipt, inspection, and acceptance, provided the material items are placed into use within a reasonable time or are specifically identified to a serially numbered end item.
- Based upon Customer specifications, material items that are subcontracted to vendors to develop, build, fabricate or manufacture may be planned (BCWS), performance taken (BCWP), and costs accrued (ACWP) using progress payment milestones that are supported by a plan detailing technical accomplishment.

Material control system, as a term, is generic and is not intended to imply that the contractor must have a fully automated system(s) to manage the material process and interfaces with the EVMS. However, many contractors in production environments have automated enterprise level material control systems, sometimes referred to as Manufacturing/Enterprise Resource Planning (M/ERP) System.

In general, budgets for all material, to include critical or high value production material, should be planned discretely using objective milestones or other rational basis for measuring the amount of material consumed. An analysis needs to be conducted to identify and differentiate between high value, critical material from low value, consumable-type material. In the absence of this type of analysis and criticality assessment from which a threshold may be established for planning material categories in the EVMS, a contractor shall not label material items as low value. Otherwise stated, all material is treated as high value in the absence of a criticality assessment of material classes and categories defined in the EVMS and the material control system, respectively. Contractors should minimize intermingling of discrete and Level of Effort (LOE) within material control accounts.

Earned value (BCWP) for material must be claimed at the point in time most suitable for the type of material. In general, BCWP for both engineering material and high-value production material should be determined discretely using objective milestones or other rational basis for measuring the amount of material consumed. Material BCWS and BCWP are intended to permit measurement of events which reflect progress in contract performance, not for measurement of administrative or financial events (e.g., booking of direct costs or vendor invoice payment). There may be situations where the contractor may offset the planning of material budgets (BCWS) to coincide with the payment of the vendor's invoice. This is done primarily to ensure that BCWP for the material and the costs for that material are reported within the same accounting period. This approach is acceptable only if (a) the actual consumption of the material occurs within a reasonable time-frame of the

payment (usually 30 days or one accounting period) and (b) it is not used as an across-the-board approach to material BCWP management for all categories of material.

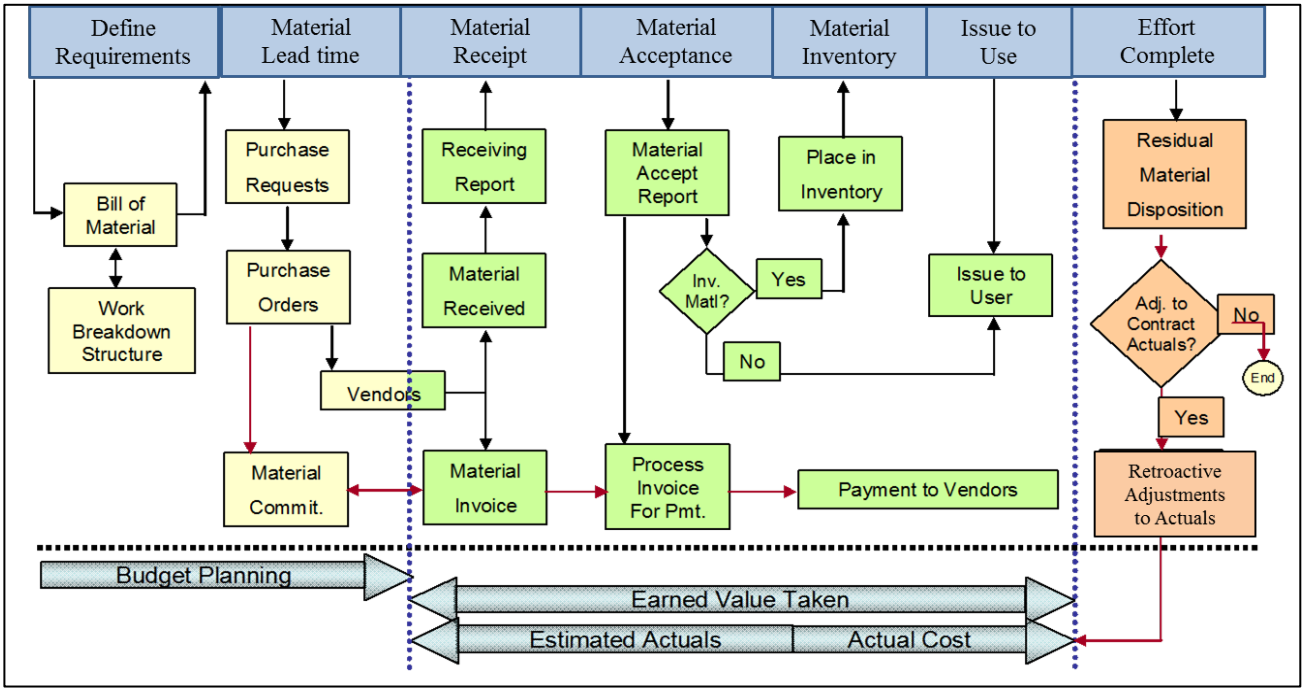
For some low value material items, BCWP may be calculated using a formula method, such as the Program Evaluation and Review Technique (PERT) Cost Formula. This method calculates BCWP by comparing the actual cost of received material (ACWP) to the expected total cost for that material (EAC) and applying the resulting percentage to the originally budgeted value for the material (Budget at Complete (BAC)), BCWP = (ACWP/EAC) x BAC. The use of this method requires that the EAC be evaluated and updated every month. This method is only appropriate for high quantity, low-value and low-risk material items (e.g., material that is consumable such as bolts, fasteners, welding rods, etc.). Any other material items labeled as low value must have defined controls regarding price and/or quantity considerations and ensure performance measurement will not be skewed without adequate consideration of price variability, price ranges, as well as, similar or like categories of material.

For contractors implementing modernized and automated material control systems in production environments which include Grouping, Pegging and Distribution (GPD) concepts and capabilities, careful consideration must be addressed regarding the following:

- Material classes and categories between the EVMS (as described) and the material control system must be defined and mapped with the product-oriented WBS and charge numbers (network demand).
- The WBS should be aligned in a product-oriented manner with the material control system products rather than a functional approach to ensure the material work scope and budget relationship is established for accurate comparison to direct costs.
- Breakpoints in groupings and grouping definitions are aligned with how the planned material item(s) use/consumption is related to the modeled schedule need dates and associated material budgets.
- Breakpoints are defined and establish cost collection points in the priced and indentured parts list.
- The planned consumption of material models how the charge numbers (network demand) are assigned to the WBS in advance of work commencement.
- Controls are defined and established relative to retroactive changes as a result of GPD parts re-prioritization, re-routing, movement of direct costs. (See Guideline 30.)

The material accounting system provides full accountability for all material (including residual inventory) purchased for a program. Documentation of the systemic approach to how material transfers, rework, and scrap are handled is required to ensure appropriate collection of direct costs and performance measurement.

Figure 11: Notional EVMS and Material Process Relationships



Note: Figure does not reflect milestone progress payments.

Attributes

- The ACWP in the EVMS is reconcilable with the direct costs in the accounting system for material items.
- ACWP must be recorded on the same basis in which budgets were planned (BCWS) at the control account level at a minimum for material items.
- ACWP is recorded in the same period that earned value is measured at the point in time most suitable for the category of material involved.
- Control account plans demonstrate time-phased material budgets and earned value technique (EVT); these plans allow traceability of high dollar materials.
- Identify material categories and align those to the type of progressing methodology to be used, (e.g., point of receipt, inspection, and acceptance; point of issue, technical accomplishment for progress payments, etc.) with the appropriate EVT.
- There is accountability for all material purchased for the program including material issues to control accounts, return of unused material, scrap quantity and disposition, and residual inventory.

Typical Work Products

- Priced Bill of Materials (BOM)/Indenture parts list for material
- Internal contractor performance reports reflecting material-related performance
- Control account plans
- Material commitment reports, inventory reports, purchase orders, and payment records
- Residual material on hand or projected at completion
- Estimated actuals log

- Material control records
- Defined and documented categories of material
- Management reports from cost tool
- Variance Analysis Reports (VARs)

5 EVMS GUIDELINES: ANALYSIS AND MANAGEMENT REPORTING CATEGORY (Guidelines 22 – 27)

The Analysis and Management Reporting category focuses on management use of the Earned Value Management System performance data to detect and act upon early technical, schedule, and/or cost deviations from the Performance Measurement Baseline. The six guidelines (22 – 27) that comprise this category establish the minimum requirements for generating and analyzing cost and schedule variances (Guidelines 22 and 23), establishing and implementing corrective action plans (Guideline 26), and maintaining credible Estimates at Completion (EAC) at both the control account and total program levels (Guideline 27). These minimum requirements facilitate the Control Account Managers' ability to identify cost and schedule performance drivers and to use that information to make informed programmatic decisions that will optimize the use of resources to accomplish the remaining work.

Consideration of the impact of indirect cost performance on the overall cost of the program is also included in this category. The guidelines require analysis of indirect cost performance and their impacts to the Estimates to Complete (ETC) for the remaining work (Guideline 24). The guidelines further require the performance data to be accurately summarized from the control account level to the contractually mandated reporting level so that the same data being used to internally manage and execute the program is being communicated externally to the government (Guideline 25.) This ensures all program stakeholders are informed of progress and allows for management action to address identified problems and/or risks to program execution (Guideline 26).

Lastly, the guidelines require the contractor to periodically evaluate and update ETCs and derive control account and program level EACs that reflect a valid projection of program cost. Timely and reliable EACs provide the program manager visibility into future resource needs and support the government's ability to provide sufficient funding to the program (Guideline 27).

Subsections 5.1 through 5.6 describe DoD's interpretation of the intent of each of the six Analysis and Management Reporting guidelines and expectations for implementing each guideline.

5.1 Guideline 22: Calculate Schedule Variance and Cost Variance

EVMS Category: Analysis and Management Reports	
EIA Standard Guideline(s): 2.4a	**Calculate Schedule Variance and Cost Variance**

At least on a monthly basis, generate the following information at the control account and other levels as necessary for management control using actual cost data from, or reconcilable with, the accounting system:

1. Comparison of the amount of planned budget and the amount of budget earned for work accomplished. This comparison provides the schedule variance.

2. Comparison of the amount of the budget earned and the actual (applied where appropriate) direct costs for the same work. This comparison provides the cost variance.

DoD Strategic Intent

Purpose of Guideline: To ensure accurate cost and schedule performance data is available. This ensures program management has timely, accurate, reliable, and auditable data to make assessments of program progress and the impacts of the technical, schedule and cost deviations from the baseline.

Management Value: The use of data that is traceable through the Earned Value Management System (EVMS) subsystems helps to ensure that the variances calculated each month are a valid reflection of progress. Calculating and analyzing cost and schedule variances allows program management to assess the impact of deviations from the Performance Measurement Baseline (PMB) and to determine the necessity for corrective action(s) in order to achieve program objectives.

Intent of Guideline: The calculation of schedule and cost variances enables program management to assess deviations from the PMB. At a minimum, cost and schedule variances are calculated at the control account level on a monthly basis for analysis and variance reporting. As work is progressed based on earned value techniques, the corresponding budget value is "earned" and is represented as the Budgeted Cost for Work Performed (BCWP). (See Guidelines 7 and 10.) BCWP is the primary data element for which Budgeted Cost for Work Scheduled (BCWS) and Actual Cost of Work Performed (ACWP) are compared to determine cost and schedule performance status. The resulting variance will provide early insight into cost and schedule status for improved visibility of program performance. (See Guideline 23.) The performance data used for variance analysis must be generated from the EVMS. To ensure cost and schedule variances are valid, the EVM method used to derive the BCWP must be consistent with the method used to plan and resource the associated work. (See Guidelines 10 and 12.) The applicable actual direct costs must map or trace to the accounting system. (See Guidelines 16 and 21.)

Attributes

- Schedule and cost variances are calculated within the EVMS at the control account level (at a minimum) and other levels as necessary.

Typical Work Products

- Internal monthly cost and schedule performance reports
- Integrated Program Management Report (IPMR)
- Management reports from cost tool

5.2 Guideline 23: Analyze Significant Variances

EVMS Category: Analysis and Management Reports	
EIA Standard Guideline(s): 2.4b	**Analyze Significant Variances**

Identify, at least monthly, the significant differences between both planned and actual schedule performance and planned and actual cost performance, and provide the reasons for the variances in the detail needed by program management.

DoD Strategic Intent

Purpose of Guideline: To identify and analyze significant cost and schedule variances in order to determine the primary factors driving performance. This will facilitate program management's ability to forecast future cost and schedule performance as well as develop corrective action plans intended to regain program objectives.

Management Value: The ability to analyze deviations from the established Performance Measurement Baseline (PMB) permits management, at all levels, to rapidly and effectively implement corrective actions in an effort to regain contract objectives. Insight into future cost and schedule performance, based on the analysis of cost, schedule, and at complete variances, will be facilitated. The communication of programmatic earned value performance status enables program management to manage and control execution of the program and assess whether deviations from the technical, schedule, and budget baselines require management action. Without this visibility into and the understanding of plan deviations, the success of the contract is jeopardized.

Intent of Guideline: Focused variance analysis provides program management insight into significant problem areas and highlights the potential need for management action to mitigate potential or realized program risks. On at least a monthly basis, cost variances, schedule variances, and variances at completion (VAC) are calculated at the control account and summary levels, as appropriate for program management insight, for analysis and management reporting. (See Guideline 27 for more information related to VAC). Variance analysis thresholds are established to focus management attention on significant deviations from the programs' PMB. Cost variances, schedule variances, and VAC that exceed the internal/external established thresholds are considered significant enough to require in-depth analysis and possible management action. The Earned Value Management System (EVMS) must have the capability to accurately calculate and analyze labor cost variances (rate and volume) and material cost variance (price and usage). In addition to government specified reporting thresholds, the contractor shall apply variance analysis thresholds consistent with internal procedures. Analyzing variances at the control account and summary levels enables program management to understand the impact of cost and schedule performance drivers at the point where budget, scope, and resources are actively managed.

The analysis and reporting of cost and schedule variances will identify the type and magnitude of the variance (i.e., value of schedule variance, cost variance, and VAC) and contains the following information for management evaluation:

- Explanation of root cause(s) of the variance.
    - Schedule variance is typically a dollarized representation of schedule performance that does not provide visibility into detailed progress and accomplishment of the milestones and tasks required for execution reflected in the IMS. Concurrent analysis of the integrated network schedule(s) is done to determine the status of specific activities, milestones, and critical events and to identify the factors contributing to the dollarized and time-based schedule variance.

- Cost variance analysis should be at the control account and summary level by element of cost.
  - For analyzing a labor cost variance relative to rate and volume variances, the formulas are:
    - Rate Variance = (Budgeted Rate – Actual Rate) x Actual Hours
    - Volume Variance = (Budgeted Hours – Actual hours) x Budgeted Rate
    - Rate Variance + Volume Variance = Labor Cost Variance
  - For analyzing a material cost variance relative to price and usage variances, the formulas are:
    - Price Variance = (Budgeted Unit Price - Actual Unit Price) X Actual Quantity.
    - Usage Variance = (Budgeted Quantity - Actual Quantity) X Budgeted Unit Price.
    - Price Variance + Usage Variance = Material Cost Variance

- Impact of the variance on the program including:
  - For schedule variance, impact to the critical path (i.e., a delay in a critical activity's completion effects the program completion), float, schedule margin (where applicable), contractual milestones and/or delivery dates.
  - Cost, schedule, and technical impact(s) on the control account, other dependent control accounts, Work Breakdown Structure (WBS) elements, and the total program.
  - Impact on the Estimate to Complete (ETC).

- Identification of Corrective action:
  - Corrective actions are based on analysis of root cause and must address mitigation of impacts, status of implementation, and closure.
  - If variances are unrecoverable, an explanation of the impact on the program should be provided.
  - If corrective action is not taken, then explain how the impact will not adversely affect accomplishment of program objectives. (See Guideline 26).

Attributes

- Schedule and cost variances are identified and analyzed at control account and summary level.
- The variance analysis identifies the factors causing the variance (e.g., efficiency, rate, timing) and potential impacts.
  - Labor cost variance analysis is substantiated from source records evaluating rate and volume variances.
  - Material cost variance analysis is substantiated from source records evaluating price and usage variances.
- Schedule variance analysis is supplemented with Integrated Master Schedule (IMS) analysis, and assesses the impact to future activities on the critical path, near-critical paths, and driving paths.
- Corrective actions/mitigation plans are identified.

Typical Work Products

- Internal monthly cost and schedule performance/variance reports
- Integrated Program Management Report (IPMR)
- Management reports from cost tool
- IMS
- Control account plans

5.3 Guideline 24: Analyze Indirect Cost Variances

EVMS Category: Analysis and Management Reports	
EIA Standard Guideline(s): 2.4c	**Analyze Indirect Cost Variances**

Identify budgeted and applied (or actual) indirect costs at the level and frequency needed by management for effective control, along with the reasons for any significant variances.

DoD Strategic Intent

Purpose of Guideline: To ensure indirect cost variances are regularly identified and reviewed for insight into their impact on overall program cost performance. This will facilitate program management's ability to forecast future indirect cost performance as well as develop corrective action plans intended to regain program objectives.

Management Value: The overall value to the contractor is visibility into the absorption of indirect costs that cannot be directly applied to a contract. Managing indirect costs on a continuing basis enables the contractor to adjust rates in a timely manner so as to complete an accurate estimate at completion for individual programs/contracts. Program management must understand that ongoing indirect cost analysis provides visibility into potential indirect cost overruns or underruns and the opportunity to develop and implement management action plans. This effect must be considered when developing and analyzing the Estimate to Complete (ETC).

Intent of Guideline: Indirect costs are allocated to a contract consistent with the procedures described in the contractor's Cost Accounting Standards Board (CASB) Disclosure Statement. Threshold identification and analysis of indirect cost variances are conducted at the level where overhead budgets have been established and where ongoing, periodic reviews of indirect cost performance are conducted. The results of the analysis of indirect cost variances shall be documented. This analysis provides program management visibility into the reasons for potential or realized indirect cost performance deviations that contribute to the contract's overall cost and impacts to the ETC. The analysis also enables the management team to take corrective actions to mitigate their impact. If significant differences between budgeted and actual indirect costs occur, periodic adjustments should be made to prevent the need for a significant year-end adjustment.

Attributes

- Analysis of indirect cost variances, by overhead category, that exceed variance thresholds is conducted monthly. Variance analysis includes root cause analysis, impact, and corrective action plans that are tracked through implementation to closure.
- The results of indirect variance analysis are provided to the appropriate level of management (functional and/or program) for use in evaluating the cost variance and the EAC.

Typical Work Products

- Contractor's CASB Disclosure Statement
- Accounting Policies and Procedures
- Indirect cost variance analyses
- Forward Pricing Rate Agreement

5.4 Guideline 25: Summarize Performance Data and Variances for Management Reporting

EVMS Category: Analysis and Management Reports	
EIA Standard Guideline(s): 2.4d	**Summarize Performance Data and Variances for Management Reporting**

Summarize the data elements and associated variances through the program organization and/or work breakdown structure to support management needs and any customer reporting specified in the project.

DoD Strategic Intent

Purpose of Guideline: To ensure that program performance status can be accurately summarized from the control account (at a minimum) through the Work Breakdown Structure (WBS) and Organizational Breakdown Structure (OBS) for program management insight and control as well as to meet customer reporting requirements.

Management Value: The availability of summarized Earned Value Management System (EVMS) data allows the government and the contractor to make management decisions based on the same information derived from the EVMS subsystems. Summarizing performance measurement data and variances allows program management to focus on potential or realized problem areas.

Intent of Guideline: It is critical that data used for internal management reporting and external customer reporting are derived from the same data resident in the EVMS. Accurately summarizing and reporting control account or summary level performance data and variance analysis provides program management insight into significant problem areas. This composite analysis will focus on the summarized lower level data and variances supporting management actions that cross WBS and OBS elements.

Attributes

- Performance measurement data is summarized from control accounts (at a minimum) through WBS and OBS hierarchies to the contract level for program management analysis purposes.
- The data elements reconcile between internal and external reports.

Typical Work Products

- Internal Performance Reports
- Program Organizational Chart (to include functional management when applicable)/OBS
- Integrated Program Management Report (IPMR)
- Management reports from cost tool

5.5 Guideline 26: Implement Corrective Actions

EVMS Category: Analysis and Management Reports	
EIA Standard Guideline(s): 2.4e	**Implement Corrective Actions**

Implement managerial action taken as the result of earned value information.

DoD Strategic Intent:

Purpose of Guideline: To ensure all levels of program management are reviewing performance measurement data, implementing corrective action plans, and using the information for decision-making purposes.

Management Value: A formal approach to preparing root cause analysis, determining impacts, establishing corrective action plans, and tracking their resolution ensures management's visibility into program execution on a continuing basis. Early identification of cost, schedule, and technical risks permits program management to implement corrective action plans in a timely fashion. Analysis of timely and accurate data facilitates effective assessment and decision-making at all levels of program management.

Intent of Guideline: Corrective action plans indicate the program manager has recognized a cost and/or schedule variance is significant enough to require management actions through a closed-loop (identification through closure) corrective action management process. Corrective action plans provide the what, how, who, and when relative to management action(s) that are taken to address identified root causes and minimize their impact(s). The plans are documented, implemented, and monitored until resolution of the problem. An effective program management approach should ensure that the individuals responsible for implementing corrective actions have sufficient authority and control over the required resources used to resolve or recover from the performance deviation.

The program manager and all levels of management should review performance measurement data and take actions in support of effective program execution. Identified cost, schedule and technical risks should be incorporated into a formal risk management process. The program's internal reports and reports forwarded to the customer must indicate the overall cost and schedule impacts of program issues. Implementing corrective actions and assessing the effect is critical to ensuring the success of the program.

Attributes

- There is evidence of management decision-making based on the effective use and analysis of earned value information (at least on a monthly basis).
- Corrective actions, based on variances, are tracked to resolution and closure.

Typical Work Products

- Internal Reports such as management action plans, review briefings, risk register, and corrective action tracking log
- Integrated Program Management Report (IPMR)
- Integrated Master Schedule (IMS)

5.6 Guideline 27: Maintain Estimate at Completion

EVMS Category: Analysis and Management Reports	
EIA Standard Guideline(s): 2.4f	**Maintain Estimate at Completion**

Develop revised estimates of cost at completion based on performance to date, commitment values for material, and estimates of future conditions. Compare this information with the performance measurement baseline to identify variances at completion important to company management and any applicable customer reporting requirements including statements of funding requirements.

DoD Strategic Intent

Purpose of Guideline: To ensure estimates of the cost to complete the remaining requirements on a program are periodically reassessed. A most likely estimate of the total cost for completing all authorized program work is maintained and reflects future impacts and risks/opportunities not yet captured in performance. Estimates to Complete (ETCs) remaining work are time-phased in accordance with the expected completion dates and support funding requirements.

Management Value: A properly established and maintained Estimate at Completion (EAC) ensures continuing visibility into the cost, schedule, risks and opportunities, as well as the resource requirements (e.g., funding, labor resources, facilities, etc.) and contributes to program success for both the government and the contractor. The Control Account Manager's (CAM) ability to communicate the control account EAC is supported by and traceable from the work package level where resources for remaining work exists. Timely, accurate, reliable, and auditable estimates support the government's ability to sufficiently fund the program and enhance internal management's visibility into critical resource requirements (labor resources, facilities, etc.).

Intent of Guideline: Developing the EAC is a critical part of program management as it provides insight for future resource requirements when a program is experiencing differences from the baseline plan. The EAC is based on the Actual Cost of Work Performed (ACWP) to date plus the ETC for the remaining work. EACs are not constrained by funding or negotiated contract costs. ETCs are developed at the work package, planning package, and Summary Level Planning Package (SLPP) levels, or where resources are identified (if lower than the work package level), and are added to the ACWP to calculate the EAC. This includes evaluating the type and quantity of resources required to complete program objectives. At a minimum, direct costs are collected at the control account. (See Guideline 16.) ETCs must be based on resources that are time-phased commensurate with schedule forecast dates.

EACs are summarized through the Work Breakdown Structure (WBS) and Organizational Breakdown Structure (OBS) to the program level. The program EAC accounts for dollarized risks and opportunities that are related to the risk management process and are tracked at the program level but have not yet been realized and/or incorporated into control accounts. The EAC shall address identified risks, opportunities, and estimates rather than merely project the expenditure of the remaining MR. The substantiation of risks cannot be confused with the intent to expend MR. The program level EAC used for internal and external reporting should be based on the same risks and opportunities. The program manager or designated manager should review, and update as needed, the EAC for Undistributed Budget (UB) and SLPPs considering factors such as current program rate performance and identified risks.

Control Account Managers (CAMs) review control account EACs monthly, and update as required, based on the EVM performance metrics, variances analyzed and assessment of remaining work. (See Guidelines 22 and

23 for more information related to variance analysis.) Sometimes a financial analyst or planner is responsible for developing EACs. This is acceptable if the EAC has been thoroughly reviewed and approved by the CAM. Monthly EAC analysis should focus on performance to date within the control account, an assessment of the effort to complete the remaining work, and an evaluation of the type and quantity of resources required to complete the effort. Effectively maintaining the control account EACs provides program management with the assurance that projected costs for completing the work are credible and that any decisions regarding the allocation of future resources is based on valid data.

At least annually, or more frequently if performance indicates that the current estimate is invalid, an assessment of the contract level EAC, also known as a comprehensive or bottom up EAC (CEAC), must be accomplished. The CEAC provides program management assurance that all factors impacting the total cost to complete program objectives have been considered. The CEAC should have a degree of formality that is differentiated from the monthly EAC process. This should include, but not be limited to, ground rules and assumptions for the CEAC approach, an overall schedule for completing the CEAC, identification of documentation that will be used to update the EAC, and the final approval process. This is done by considering many of the same factors included in the monthly evaluation of the control account as well as:

- Evaluation of both direct and indirect performance to date efficiency achieved by performing organizations for completed work and comparing it to remaining budgets and scope of work.
- Assessment of commitment values for material to complete the remaining work.
- Evaluation of subcontractor assessments of cost to complete their efforts; for the major subcontracts, the prime contractor CAM is responsible for ensuring timely and reliable EACs for situations when the subcontractor has not provided their most current information available.
- Assessment of rate and volume variance analysis when determining labor estimates to complete.
- Assessment of price and usage variance analysis when determining material estimates to complete.
- Incorporation of program level risks and opportunities that have not yet been incorporated into the cost and schedule baseline.
- Facility improvements or other capital investments that may improve cost and schedule performance in the future.
- Estimation of future conditions to derive the most accurate estimate at completion, e.g., projected rate changes, process improvements that may result in reduced costs, or other economic factors that may impact future costs.

Differences between the Budget at Complete (BAC) and EAC projections result in the Variance at Completion (VAC). The VAC is calculated at the control account, at a minimum, and SLPP. An analysis of the difference should include what underlying elements of work caused the deviation from the BAC, and what corrective actions, if any, are being implemented to minimize the cost overruns. (See Guideline 23.)

Attributes

- A properly maintained control account EAC continuously adjusted to reflect program progress, as well as scope and schedule changes. This is supported by timely updates at the work package, planning package, or lower levels, based on modified resource requirements.
- The direct/indirect rates used for ETCs/EACs shall consider the latest information available.
- VACs are calculated and variances analyzed with corrective actions at the control account (at a minimum).
- Projected risks in the program EAC are substantiated from the risks and opportunity management process and/or the Program Manager's assessment.
- Contractor's externally reported EAC and internal EAC reconcile and have clear traceability based on the identified risks and opportunities or other identified factors.

Typical Work Products

- Risk/opportunity register
- Bill of Materials (BOM)
- Control account plans reflecting time-phased ETC
- Integrated master schedule (IMS) focused on schedule forecast dates
- Internal and external management reports, such as IPMR
- Subcontractor reports containing subcontract EACs
- Ground rules and assumptions supporting comprehensive EACs
- Management reports from cost tool
- Contract Funds Status Report (CFSR)
- Forward Pricing Rate Agreement/Proposal
- Indirect cost variance analyses

6 EVMS GUIDELINES: REVISIONS AND DATA MAINTENANCE CATEGORY (Guidelines 28-32)

The Revisions and Data Maintenance category focuses on maintaining an accurate and reliable Contract Budget Base (CBB) and Performance Measurement Baseline (PMB) throughout its period of performance. The objective of the five guidelines (28 – 32) that comprise this category is to establish the requirements for implementing a formal change control process that will preserve the integrity of the PMB and corresponding Earned Value Management System (EVMS) data. These guidelines ensure that the PMB reflects the most current plan for accomplishing the effort thus providing credible performance measurement data that management can rely on to make program-related decisions.

As the PMB represents the agreed-upon plan between the contractor and government for how contractually authorized work is accomplished and measured, any changes to the plan must be formally controlled and properly documented using a systematic approach. Ensuring authorized contractual changes are incorporated into all affected budgets, schedules, work authorizations, and other program documentation in a timely manner prior to the commencement of that work ensures the PMB reflects all authorized work scope (Guideline 28). Implementation of the Revisions and Data Maintenance guidelines requires the contractor to use a disciplined change control process that maintains the integrity of cost and schedule data when incorporating authorized revisions to the program's scope, schedule, and/or budgets (Guideline 29). To maintain the accuracy/validity of performance measurement data, and its use for making reliable cost/schedule projections, retroactive changes to the data must be controlled and limited to only certain circumstances (Guideline 30).

The source of revisions to the PMB can be either internally or externally driven and may affect all categories of an EVMS. Consistent and systematic use of a baseline change control process prevents unauthorized revisions to the CBB and PMB (Guideline 31). (See Reference (o) for more detailed information regarding implementation of an Over Target Baseline/Over Target Schedule as discussed in Guideline 31.) It is important that authorized baseline revisions are documented, managed, tracked and reported to the program manager and the government in a timely manner (Guideline 32).

Subsections 6.1 through 6.5 describe DoD's interpretation of the intent of each of the five Revisions and Data Maintenance guidelines and expectations for implementing each guideline.

6.1 Guideline 28: Incorporate Changes in a Timely Manner

EVMS Category: Revisions and Data Maintenance	
EIA Standard Guideline(s): 2.5a	**Incorporate Changes in a Timely Manner**

Incorporate authorized changes in a timely manner, recording the effects of such changes in budgets and schedules. In the directed effort prior to negotiation of a change, base such revisions on the amount estimated and budgeted to the program organizations.

DoD Strategic Intent

Purpose of Guideline: To ensure authorized changes are accurately incorporated into the Contract Budget Base (CBB) and program schedule in a timely and systematic manner. Implementing a disciplined change control process assures that the CBB (Performance Measurement Baseline (PMB) + Management Reserve (MR)) is up to date and that performance measurement data reflects all authorized work scope.

Management Value: A properly maintained CBB is crucial to effective program management. The timely and accurate incorporation of contractual changes ensures that the information generated from the execution of the baseline plan provides an accurate picture of progress and facilitates appropriate management actions and decisions.

Intent of Guideline: The timely and accurate incorporation of contractual changes into budgets and schedules in the PMB maintains the integrity of the baseline plan. Contractual changes should contain the most current rates as proposed to or approved by the cognizant Contracting Officer for planning purposes. Undistributed Budget (UB) is distributed to Summary Level Planning Packages (SLPPs) and/or control accounts in a timely manner following Authorization to Proceed (ATP) for a change order, letter contract, or negotiations and definitization of a supplemental agreement. Authorized changes are incorporated into schedules, budgets, work authorization documents, and other program documentation as needed to properly reflect the new work scope. This provides performance measurement data that accurately reflects the status of all currently authorized work. Any modification to the CBB and/or PMB shall not commence without the authorized work scope, period of performance, and associated budget. Incorporating customer-directed changes shall not arbitrarily result in a decision to also implement a single point adjustment that eliminates existing cost and schedule variances. (See Guideline 30 for more information regarding retroactive changes.)

There may be instances where scope is not fully defined and it is not practical for the distribution of budget authority into SLPPs and/or control accounts. For example, technology insertions or study efforts that require budget authority to reside in UB for a sustained period of time. Another example is work scope and associated budget that the customer and contractor agree can no longer be executed as planned in distributed budget within the contract period of performance may be put into UB pending settlement and disposition through contractual negotiations and supplemental agreement. This may require time before the UB is reduced following negotiations. Changes should never result in negative UB or MR values. (See Guideline 14 for additional information on MR and UB.)

The changes to the CBB in the form of Authorized Unpriced Work (AUW) must accurately identify all authorized scope on contract. AUW scope and associated budgets are identified without the constraint of funding or Not to Exceed (NTE) limitations, but are related to the value of the proposal. Just as incrementally funded contracts should establish a CBB for the entire scope of work, the budget established for AUW must represent all authorized scope. The contractor responds to the AUW authorization by placing the near-term

budget into the applicable control accounts and the remainder in undistributed budget until negotiation and incorporation into the contract (and removal from AUW). After definitization of a contract modification, any AUW budget remaining in UB is allocated appropriately, i.e., either planned and budgeted into control account(s), SLPP(s), or MR as soon as practical or removed from the CBB.

Attributes

- Authorized work scope/budget changes are incorporated in the PMB and the Integrated Master Schedule (IMS) as soon as practicable.
- UB is distributed to or removed from control accounts or SLPP's as quickly as practicable.

Typical Work Products

- Contract Modifications and amended Statement of Work (SOW)
- Baseline change documentation
- Work Breakdown Structure (WBS), Organizational Breakdown Structure (OBS), Responsibility Assignment Matrix (RAM), Work Authorization Documentation, Control account plans
- Program Change Control Logs
- Internal management reports
- Internal Contract level authorization (above control account work authorization)
- Integrated Program Management Report (IPMR)
- IMS

6.2 Guideline 29: Maintain Baseline and Reconcile Budgets

EVMS Category: Revisions and Data Maintenance	
EIA Standard Guideline(s): 2.5b	**Maintain Baseline and Reconcile Budgets**

Reconcile current budgets to prior budgets in terms of changes to the authorized work and internal replanning in the detail needed by management for effective control.

DoD Strategic Intent

Purpose of Guideline: To ensure the ongoing integrity of the Contract Budget Base (CBB), budget traceability throughout the lifecycle of a program must be maintained. Current budgets must reconcile to prior budgets in terms of changes to work scope, resources, schedule, and rates so that the impact of contract changes and internal replanning on overall program growth is visible to all stakeholders.

Management Value: The need for accurate performance measurement requires that the CBB maintain a traceable relationship to the contract. As changes are made to the contract, the CBB must be adjusted by the amount of change in order for the communication between the customer and contractor to remain valid.

Intent of Guideline: It may be necessary to perform internal replanning actions within scope of the authorized contract (CBB or Total Allocated Budget (TAB)) to compensate for cost, schedule, and technical problems which have caused the original plan to become unrealistic; or which require a reorganization of work or people to increase efficiency of operations; or which require different engineering or manufacturing approaches. Internal replanning is intended to maintain an executable baseline for the remaining in-scope work on the contract. Baseline changes are controlled and understood in terms of their impact on scope, schedule, and resources. Current budgets must reflect current levels of authorized work based on resources needed to complete that work and are traceable to original authorized budgets and scope. The ability to track budget values for both internal and external changes is necessary to properly maintain the CBB from contract start to completion. Contract budget log(s) provide traceability of authorized baseline changes. Current indirect rates are used for changes to future work and are reconcilable to the prior indirect rates incorporated in the Performance Measurement Baseline (PMB).

Baseline changes must be traceable with authorizing documents and through supporting budget log(s). When Management Reserve (MR) transactions are part of a baseline change, it must be appropriate and accurately tracked in applicable logs and reports. The use of the Undistributed Budget (UB) to process changes provides traceability and enables reconciliation from the current value of the CBB back to the original value. (See Guideline 14 for additional information on identifying initial establishment of MR and UB.)

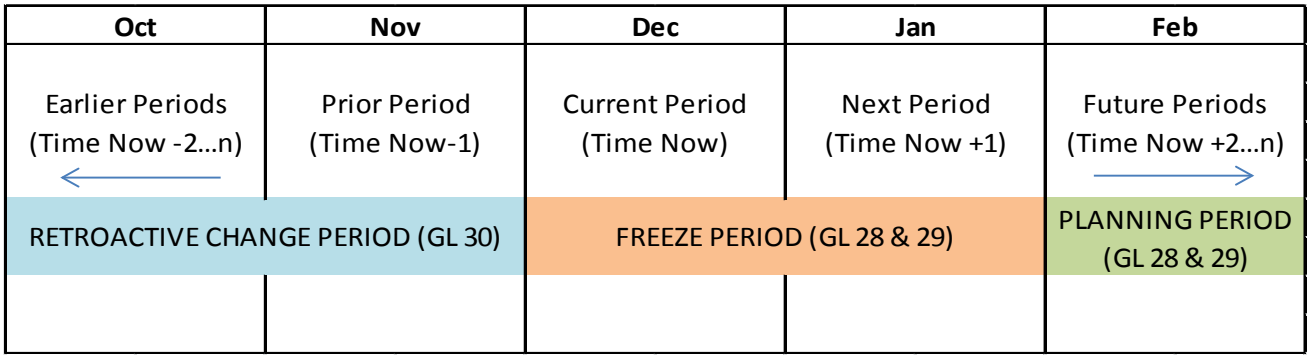
Continuous planning processes (e.g., rolling wave, block planning, etc.) may be used to convert Summary Level Planning Packages (SLPPs) into control accounts and control account planning packages into work packages. These planning processes ensure work is detail planned at the earliest practical time. The extent of the detailed planning is determined by the nature of the work and should be planned as far into the future as practical. Once work packages are defined and budgeted, controls must be established to minimize further changes to budgets, schedule, or scope of work, particularly during the freeze period.

When continuous planning processes are executed, there must be a means to reconcile the new planning (scope, schedule, and resources) in the control account to previous values for the associated work packages and planning packages. This is especially true if the resulting total value of the control account changes as a result of this planning process.

In order to ensure PMB stability for accurate performance measurement, it is necessary to establish a freeze period. The primary intent of any freeze period is to maintain forward planning discipline and the integrity of the PMB. Contractors should establish a period of time during which baseline changes must be limited to customer-approved contract actions, rate changes, and economic price adjustments. (See Figure 12: Notional Freeze Period.) Supporting rationale for changes in the freeze period must be documented in baseline change control documentation. Work packages containing Level of Effort with baseline start dates in the freeze period may be replanned as long as no actual costs for that effort have previously been incurred.

Future periods are any accounting periods beyond the freeze period. Due to the importance of maintaining a valid baseline for performance measurement, internal replanning must be accomplished in a systematic and timely manner, and must be carefully controlled. Internal replanning should not be used as an alternative to proper initial planning, nor should it be used to mask legitimate variances. The contractor should define the process for internal replanning, related to setting BCWS equal to BCWP (not the reverse) when eliminating schedule variances for in-process work within the freeze period.

Figure 12: Notional Freeze Period



Attributes

- Currently authorized work/scope budget relationship is reconcilable to the prior work/scope budget relationship.
- MR and/or UB transactions are appropriate and accurately tracked in applicable logs and reports.
- The most current indirect rates are reconcilable as applied to future planning efforts.
- Effective controls are in place to restrict changes to work scope and budgets for open work packages with direct costs incurred.
- The PMB is effectively controlled in the freeze period to prevent multiple continuing adjustments with proactive and timely baseline maintenance activities.

Typical Work Products

- Contract Modifications
- Program Change Control Logs
- Updated work authorization documentation
- Updated Control account plans
- Baseline change documentation
- Management reports from cost tool
- Budget logs

6.3 Guideline 30: Control Retroactive Changes

EVMS Category: Revisions and Data Maintenance	
EIA Standard Guideline(s): 2.5c	**Control Retroactive Changes**

Control retroactive changes to records pertaining to work performed that would change previously reported amounts for actual costs, earned value, or budgets. Adjustments should be made only for correction of errors, routine accounting adjustments, effects of customer or management directed changes, or to improve the baseline integrity and accuracy of performance measurement data.

DoD Strategic Intent

Purpose of Guideline: To ensure retroactive changes to previously reported data are limited in order to maintain the credibility of using data to project future cost and schedule performance. The changes should be limited to routine accounting adjustments, definitization of customer-approved contract actions, rate changes, economic price adjustments, or correction of errors.

Management Value: Controlling retroactive changes to budgets or costs for completed work maintains the validity of historic Earned Value Management System (EVMS) cost and schedule variance trends and reflects true program performance. A stable baseline and performance information against that baseline are essential to both internal and external management if informed decisions are going to be made based on the analysis of the system-generated information. Establishment of internal controls over retroactive budget and/or performance adjustments will help maintain visibility of overall project variance from plan. Uncontrolled changes to the PMB limits the ability to conduct predictive analysis.

Intent of Guideline: Retroactive changes involve adjustments to previously reported values for Budgeted Cost for Work Scheduled (BCWS), Budgeted Cost for Work Performed (BCWP), and/or Actual Cost of Work Performed (ACWP) related to completed work. (See Guideline 29 for changes in the freeze period). Retroactively changing data may be necessary under certain conditions and is controlled by the contractor's formal change control procedures. These procedures must ensure existing cost and schedule variances are not arbitrarily eliminated. Adjustments resulting from definitization of contract actions should be limited to affected work scope budgets. Retroactive adjustments due to rate changes are only made to ACWP. The cumulative values for the BCWS and BCWP are not adjusted for direct or indirect cost rate increases or decreases. However, it may be necessary to perform a replanning action. Internal replanning of remaining portions of the PMB to account for significant changes in the anticipated rates is desirable, but not mandatory. This enables credible trend analysis for projecting future cost and schedule performance and accurate Estimates at Completion (EACs).

When using an automated material control system, controls for retroactive changes caused by Grouping, Pegging, and Distribution (GPD) parts re-prioritization, re-routing, and movement of direct costs must be defined in contractor procedures. These types of retroactive changes must be traceable between the automated material control system and the EVMS. (See Guideline 21 for additional information on GPD).

A Single Point Adjustment (SPA) is the process that sets existing contract cost and/or schedule variances to zero and typically accompanies a replan of all remaining effort with the goal of completing the project on schedule and within budget. If a contractor applies the concept of an SPA, i.e., to set BCWS and BCWP equal to ACWP, then proper controls need to be defined and practiced. Following the implementation of an SPA, the goal should be to develop a new Performance Measurement Baseline (PMB) that completes all the remaining

work using only the remaining budget from the original PMB. SPAs should be implemented sparingly. The contractor should provide advance notification to the contracting officer prior to implementation of an SPA.

Attributes

- A change control process exists that controls retroactive changes to previously recorded values for BCWS, BCWP, or ACWP, including approval and explanation.

Typical Work Products

- Program Budget and Change Control Logs
- Integrated Program Management Report (IPMR)
- Management reports from cost tool
- Baseline change documentation
- General Ledger/Journal entry adjustments

6.4 Guideline 31: Prevent Unauthorized Revisions

EVMS Category: Revisions and Data Maintenance	
EIA Standard Guideline: 2.5d	**Prevent Unauthorized Revisions**
Prevent revisions to the program budget except for authorized changes.	

DoD Strategic Intent

Purpose of Guideline: To prevent the incorporation of unauthorized revisions into the Contract Budget Base (CBB).

Management Value: Disciplined baseline change control helps maintain the relationship between the Total Allocated Budget (TAB) and contract value. This ensures the program manager is managing with performance measurement data that accurately reflects only the authorized contractual scope of work. In order to prevent unauthorized increases to the TAB, causing it to exceed the CBB value, prior approval is required between the contractor and the government for implementation of an Over Target Baseline (OTB). This reinforces the mutual management of the program.

Intent of Guideline: The consistent and systematic use of a baseline change control process to implement changes prevents unauthorized revisions to the time-phased Performance Measurement Baseline (PMB). Unauthorized revisions could inadvertently result in baseline budgets or schedules that exceed the CBB. The CBB is a controlled value and cannot be changed by the contractor except as a result of customer contract actions.

There may be situations when available budgets for the remaining work are insufficient for successful execution of the current plan, and results in unrealistic or un-executable assessments of program performance. In these situations, the program managers may conclude that the PMB no longer provides meaningful cost and/or schedule performance data. It may be necessary for the Total Allocated Budget (TAB) for the work to exceed the CBB, a condition known as an OTB, and/or for the baseline schedule to exceed contract milestones, a condition known as an Over Target Schedule (OTS). The process of establishing either an OTB and/or OTS is called Formal Reprogramming and may be considered where improved insight and management control would result.

A thorough analysis of program status is necessary before the consideration of the implementation of an OTB and/or OTS. Requests for establishing an OTB or an OTS must be initiated by the contractor and approved by the customer contracting authority. Subcontractor flowdown, where it relates to formal reprogramming, is the prime contractor's responsibility to approve and manage. Implementing an OTB and/or OTS does not change the terms and conditions of the contract but merely serves to improve management of the remaining work. For special considerations to reset variances or implement a Single Point Adjustment (SPA) for an OTB/OTS, refer to Guideline 30.

Attributes

- Contractual budget values (CBB or TAB) are only revised through contractual authorization.

Typical Work Products
• Contract Modifications • Work Breakdown Structure (WBS), Organizational Breakdown Structure (OBS), work authorization documentation, Integrated Master Schedule (IMS), Control account plan • Change control logs • Basis for OTB/OTS/SPA • Integrated Program Management Report (IPMR)

6.5 Guideline 32: Document PMB Changes

EVMS Category: Revisions and Data Maintenance	
EIA Standard Guideline: 2.5e	**Document PMB Changes**
Document changes to the performance measurement baseline.	

DoD Strategic Intent

Purpose of Guideline: To ensure changes to the Performance Measurement Baseline (PMB) are transparent to program stakeholders and are documented throughout internally and externally affected systems and reports.

Management Value: Effective implementation ensures programmatic control and traceability for maintaining the PMB and performing the authorized scope, schedule, and budget. This enhances internal and external management confidence in the performance data that is used to make programmatic decisions. Using a disciplined, systematic change control process to document PMB changes provides assurance that all program stakeholders are using the same technical, schedule, and cost baselines to measure contract performance.

Intent of Guideline: The PMB should always reflect the most current plan for accomplishing the effort. Authorized changes must be incorporated into the PMB and authorization documents updated accordingly prior to the commencement of work. Documented changes made to the PMB must be traceable and substantiated. A baseline change control process governs authorized changes to work scope, period of performance, and budget in the CBB.

Attributes

- Timely and authorized changes incorporated into the PMB are properly documented and traceable throughout the system in accordance with procedures.

Typical Work Products

- Integrated Program Management Report (IPMR)
- Program Change Control Logs, Baseline Change Logs / Requests, change documentation
- Work Breakdown Structure (WBS), Organizational Breakdown Structure (OBS), work authorization documentation, Integrated Master Schedule (IMS), Control account plan
- Management reports from cost tool

7 GLOSSARY

7.1 PART I. ACRONYMS

ACRONYM	TERM
ACWP	Actual Cost of Work Performed
ATP	Authorization To Proceed
AUW	Authorized Unpriced Work
BAC	Budget at Completion
BCWP	Budgeted Cost for Work Performed
BCWS	Budgeted Cost for Work Scheduled
BOM	Bill of Materials
CAM	Control Account Manager
CAP	Control Account Plan
CAS	Cost Accounting Standards
CASB	Control Accounting Standards Board
CBB	Contract Budget Base
CDRL	Contract Data Requirements List
CEAC	Comprehensive Estimate at Completion
CFSR	Contract Funds Status Report
CPR	Contract Performance Report
CSDR	Cost and Software Data Reporting
CWBS	Contract Work Breakdown Structure
CV	Cost Variance
DCMA	Defense Contract Management Agency
DFARS	Defense Federal Acquisition Regulation Supplement
DoDI	DoD Instruction
EA	Estimated Actuals
EAC	Estimate at Completion
EIA	Electronic Industries Alliance
EOC	Elements of Costs
ERP	Enterprise Resource Planning
ETC	Estimate to Complete
EV	Earned Value
EVM	Earned Value Management
EVMS	Earned Value Management System
EVT	Earned Value Technique

ACRONYM	TERM
FAR	Federal Acquisition Regulation
FPRA	Forward Pricing Rate Agreement
G&A	General & Administrative
GAAP	Generally Accepted Accounting Principles
GPD	Grouping, Pegging, and Distribution
IC	Intelligence Community
IMP	Integrated Master Plan
IMS	Integrated Master Schedule
IPT	Integrated Product Team
IPMR	Integrated Program Management Report
LOE	Level of Effort
M/ERP	Manufacturing/Enterprise Resource Planning
MMAS	Material Management and Accounting System
MR	Management Reserve
MRP	Manufacturing Resource Planning
NCC	Negotiated Contract Cost
NAVSEA	Naval Sea Systems Command
NTE	Not To Exceed
OBS	Organizational Breakdown Structure
ODC	Other Direct Costs
OMB	Office of Management and Budget
OTB	Over Target Baseline
OTS	Over Target Schedule
PARCA	Performance Assessment and Root Cause Analysis
PBOM	Priced Bill of Materials
PERT	Program Evaluation and Review Technique
PMB	Performance Measurement Baseline
POP	Period of Performance
PP	Planning Package
RAM	Responsibility Assignment Matrix

ACRONYM	TERM
SD	System Description
SLPP	Summary Level Planning Package
SOW	Statement of Work
SPA	Single Point Adjustment
SRA	Schedule Risk Assessment
SUPSHIP	Navy Supervisor of Shipbuilding
SV	Schedule Variance
SVTs	Schedule Visibility Tasks
TAB	Total Allocated Budget
UB	Undistributed Budget
VARs	Variance Analysis Reports
VAC	Variance at Completion
WAD	Work Authorization Documentation
WBS	Work Breakdown Structure
WP	Work Package

7.2 PART II. DEFINITIONS

TERM	DEFINITION
ACCOUNTING PERIOD	The period of time during which actuals will be collected for transfer into the Earned Value Management System for reporting purposes.
ACTUAL COSTS	The costs actually incurred and recorded in the general ledger. .
ACTUAL COST OF WORK PERFORMED (ACWP)	The costs actually incurred and recorded in the Earned Value Management System for accomplishing the work performed within a given accounting period. ACWP reflects the applied costs that may be expressed as a value for a specific period or cumulative to date. (See also *Estimated Actuals*.)
ALLOCATED BUDGET	See *Total Allocated Budget.*
APPORTIONED EFFORT (AE)	Effort that by itself is not readily measured or divisible into discrete work packages but is related in direct proportion to the planning and performance of other discrete effort.
AUTHORIZATION TO PROCEED (ATP)	Official authority for the contractor to begin work. It is usually issued by the procuring contracting officer.
AUTHORIZED UNPRICED WORK (AUW)	A contract scope change which has been directed by the government contracting officer but has not yet been fully negotiated/definitized. It includes a value, excluding fee or profit, typically associated with the authorized, unpriced change order.
AUTHORIZED WORK	That effort that has been definitized and is on contract plus that effort for which definitized contract costs have not been agreed to but for which written authorization has been received.
BASELINE	See *Performance Measurement Baseline*.
BASELINE SCHEDULE	The original time-phased plan incorporated into the Integrated Master Schedule against which schedule status is compared or measured.
BILL OF MATERIALS (BOM)	A listing of material items required to complete the production of a single unit. When actual or expected prices are applied, it becomes the Priced Bill of Materials (PBOM).
BLOCK PLANNING	The periodic process of converting Summary Level Planning Packages into control accounts and control account planning packages into work packages. The time period chosen reflects blocks of time from a specific contractual milestone to a subsequent specific contractual milestone.
BUDGET AT COMPLETION (BAC)	The sum of all budgets established for the contract through any given WBS/OBS level. When associated with a level it becomes control account BAC, Performance Measurement Baseline BAC, etc. (See *Total Allocated Budget.)*

TERM	DEFINITION
BUDGETED COST FOR WORK PERFORMED (BCWP)	The sum of the budgets for completed work packages and completed portions of open work packages, plus the applicable portion of the budgets for level of effort and apportioned effort. May be expressed as a value for a specific period or cumulative to date.
BUDGETED COST FOR WORK SCHEDULED (BCWS)	The sum of the budgets for all work packages, planning packages, etc., scheduled to be accomplished (including in-process work packages), plus the amount of level of effort and apportioned effort scheduled to be accomplished within a given time period. May be expressed as a value for a specific period, or cumulative to date.
CONTRACT BUDGET BASE (CBB)	The sum of the negotiated contract cost plus the estimated cost of authorized unpriced work. This represents the total amount of performance measurement budget that may be allocated to contract work. (*See Total Allocated Budget*).
CONTRACT DATA REQUIREMENTS LIST (CDRL)	The standard format for identifying potential data requirements in a solicitation, and deliverable data requirements in a contract. The purpose of the CDRL is to provide a standardized method of clearly and unambiguously delineating the Government's minimum essential data needs.
CONTRACT PERFORMANCE REPORT (CPR)	A contractually required report, prepared by the contractor, containing performance information derived from the internal Earned Value Management System that provides status of progress on the contract (DI-MGMT-81466A). (See *Integrated Program Management Report*).
CONTRACT WORK BREAKDOWN STRUCTURE (CWBS)	The complete WBS for a contract. It includes the DoD approved WBS for reporting purposes and its discretionary extension to lower levels by the contractor, in accordance with government direction and the contract work statement. It provides for the product-oriented decomposition of contract work into major elements that include all the hardware, software, data and/or services that are the responsibility of the contractor.
CONTRACTOR	An entity in private industry which enters into contracts with the government. In this guide, the word also applies to government-owned, government-operated activities which perform work on major defense programs.
CONTROL ACCOUNT	The control account is the intersection of one WBS element and one OBS element representing a discrete portion of program scope assigned to an individual manager. The control account is the minimum level where technical, schedule, and cost responsibility exists.
CONTROL ACCOUNT MANAGER (CAM)	A single manager within the contractor’s organizational structure that has been given the authority and responsibility to manage one or more control accounts.
CONTROL ACCOUNT PLAN (CAP)	The documented representation of the time-phased integration of scope, schedule and resources for all control account authorized work.

TERM	DEFINITION
COST ACCOUNTING STANDARDS (CAS)	Requirements established by the CAS Board to ensure consistent and proper accounting for direct and indirect costs applied to government contracts.
COST ACCOUNTING STANDARDS BOARD (CASB)	An independently established statutory Board. The Board has the exclusive authority to make, promulgate, and amend cost accounting standards and interpretations designed to achieve uniformity and consistency in the cost accounting practices governing the measurement, assignment, and allocation of costs to contracts with the United States (41 U.S.C. 1501 et seq., formerly, 41 U.S.C. 422).
COST ACCOUNTING STANDARDS BOARD (CASB) DISCLOSURE STATEMENT	A written description of a contractor's cost accounting practices and procedures.
COST VARIANCE (CV)	A metric for showing cost performance derived from earned value data. It is the mathematical difference between Budgeted Cost for Work Performed and Actual Cost of Work Performed. A positive value indicates a favorable condition and a negative value indicates an unfavorable condition. It may be expressed as a value for a specific period of time or cumulative to date.
CRITICAL ACTIVITY	A discrete work package or planning package (or lower level tasks/activities) that resides on the critical path.
CRITICAL PATH	A sequence of discrete work packages and planning packages (or lower level tasks/activities) in the network that has the longest total duration with the least amount of total float/slack through an end point that is calculated by the schedule software application.
CRITICAL PATH ANALYSIS	A network analysis technique used to predict project duration by analyzing which sequence of activities (which path) has the least amount of scheduling flexibility (the least amount of float). See *Network Schedule.*
CURRENT PERIOD	Accounting period in which the program is currently executing, i.e., time now.
DETAIL PLANNING	The act of defining the scope, schedule and budget of a planning package into more detailed work packages with earned value techniques. Or the act of further defining the scope, schedule and budget of a SLPP into more detailed control accounts.
DIRECT COSTS	Any costs that may be specifically identified with a singular cost objective.
DISCRETE EFFORT	Tasks related to the completion of specific end products or services and can be directly planned and measured.

TERM	DEFINITION
DRIVING PATH	The longest sequence of discrete tasks/activities from time-now to a selected interim contract milestone. Discrete tasks/activities on the driving path have the least amount of total float/slack to the interim contract milestone. Driving path may not be part of the contract critical path.
EARNED VALUE (EV)	See *Budgeted Cost for Work Performed (BCWP).*
EARNED VALUE MANAGEMENT (EVM)	A program management technique for measuring program performance and progress in an objective manner.
EARNED VALUE MANAGEMENT SYSTEM (EVMS)	An integrated management system that integrates the work scope, schedule, and cost parameters of a program in a manner that provides objective performance measurement data. It measures progress objectively with earned value metrics; accumulates direct costs; allows for analysis of deviations from plans; facilitates forecasting the achievement of milestones and contract events; provides supporting data for forecasting of estimated costs; and fosters discipline in incorporating changes to the baseline in a timely manner.
EARNED VALUE MANAGEMENT SYSTEM (EVMS) COMPLIANCE	The continuing implementation, operation, and maintenance of the contractor's EVMS in accordance with the 32 Guidelines in EIA-748.
EARNED VALUE MANAGEMENT SYSTEM (EVMS) GUIDELINES	The 32 Guidelines contained in the EIA-748 (current version) Standard that establish the framework for a contractor's EVMS.
EARNED VALUE MANAGEMENT SYSTEM (EVMS) SURVEILLANCE	A recurring process for assessing the continuous compliance of the contractor's EVMS against the 32 Guidelines in EIA-748.
EARNED VALUE TECHNIQUE (EVT)	A specific technique (e.g., Milestone Method, Percent Complete, 50/50, 0/100, Units Complete, Apportioned Effort, LOE, etc.) selected to represent the measurement of work scope progress and accomplishment in a work package.
ELEMENTS OF COSTS (EOC)	Product costs are decomposed into the elements of cost. These elements are comprised of labor, materials, other direct costs and overhead. EOCs represent the cost of products that are typical across industry.
ENTERPRISE RESOURCE PLANNING (ERP)	See *Manufacturing/Enterprise Resource Planning (M/ERP) System.*
ESTIMATE AT COMPLETION (EAC)	The current estimated total cost for program authorized work. It equals Actual Cost of Work Performed plus the estimated costs to complete (Estimate To Complete (ETC)) the authorized work remaining. EAC does not include profit or fee.
ESTIMATE TO COMPLETE (ETC)	Estimate of costs to complete all work from a point in time to the end of the program.

TERM	DEFINITION
ESTIMATED ACTUALS (EA)	A value entered into the Earned Value Management System to represent direct costs for material and/or subcontracted items for which earned value has been taken but invoices or billings have not entered the accounting system.
ESTIMATED COST (ESTIMATED ACTUAL)	An anticipated cost for specified work scope. Also known as estimated actual.
FORMAL REPROGRAMMING	The process of establishing an Over Target Baseline (OTB) and/or Over Target Schedule (OTS).
FORWARD PRICING RATE AGREEMENT (FPRA)	An agreement between a contractor and a government agency in which certain indirect rates are established for a specified period of time. These rates are estimates of costs and are used to price contracts and contract modifications.
FREEZE PERIOD	A period of time when baseline changes are limited. See Guideline 29 for information on exceptions to making baseline changes within the freeze period.
GENERALLY ACCEPTED ACCOUNTING PRINCPLES (GAAP)	The standard framework of guidelines for financial accounting used in any given jurisdiction; generally known as accounting standards or standard accounting practice.
GENERAL LEDGER	A complete record of financial transactions over the life of a company. The ledger holds account information that is needed to prepare financial statements, and includes accounts for assets, liabilities, owners' equity, revenues and expenses.
GENERAL & ADMINISTRATIVE (G&A)	Per FAR Subpart 2.1: G&A expense means any management, financial, and other expense which is incurred by or allocated to a business unit and which is for the general management and administration of the business unit as a whole. G&A expense does not include those management expenses whose beneficial or causal relationship to cost objectives can be more directly measured by a base other than a cost input base representing the total activity of a business unit during a cost accounting period.
GROUPING, PEGGING, AND DISTRIBUTION	Developed as a way to combine material requirements across projects for procurement, fabrication, and assembly purposes but still allow for exact cost assignment back to the originating requirement.
HIGH VALUE MATERIAL	Major components, assemblies, or critical piece-part items, etc. that are identified based on an analysis of material categories a company needs to procure and consume in the integration and build of an end item on a program.
HORIZONTAL INTEGRATION	The logical relationships and time-phasing between tasks and milestones from program start to finish.
INDIRECT COSTS	Costs that cannot be identified specifically against a particular program or activity and must be controlled and budgeted at a functional or organizational level.

TERM	DEFINITION
INTEGRATED MASTER PLAN (IMP)	An event-driven plan that documents the significant accomplishments necessary to complete the work and ties each accomplishment to a key program event.
INTEGRATED MASTER SCHEDULE (IMS)	An integrated, networked schedule containing all of the detailed activities necessary to accomplish the objectives of a program. When coupled with the Integrated Master Plan, it provides the time spans needed to complete the accomplishments and criteria of the Integrated Master Plan events. The IMS normally contains all levels of schedules for the program (master, intermediate, and detailed).
INTEGRATED PRODUCT TEAM (IPT)	A multidisciplinary team assigned management responsibility for one or more elements of an acquisition program.
INTEGRATED PROGRAM MANAGEMENT REPORT (IPMR)	A contractually required report, prepared by the contractor, containing performance information derived from the internal Earned Value Management System. Provides status of contract cost and schedule performance (DI-MGMT-81861). The IPMR is being phased in to replace the Contract Performance Reports (DI-MGMT-81466) and the Integrated Master Schedule (DI-MGMT-81650).
LEVEL OF EFFORT (LOE)	Work defined as having no practicable measurable output or product that can be discretely planned and objectively measured at the work package level.
MANAGEMENT RESERVE (MR)	An amount of the total budget withheld for management control purposes for future considerations to handle execution risks. It is not part of the Performance Measurement Baseline.
MANUFACTURING RESOURCE PLANNING (MRP)	See *Manufacturing/Enterprise Resource Planning (M/ERP) System*.
MANUFACTURING/ENTERPRISE RESOURCE PLANNING (M/ERP) SYSTEM	A method for the effective planning of all resources of a manufacturing contractor. It integrates planning of all aspects (not just production) of a manufacturing firm. It includes functions such as business planning, production planning and scheduling, capacity requirement planning, job costing, financial management and forecasting, order processing, shop floor control, time and attendance, performance measurement, and sales and operations planning.
MATERIAL CATEGORIES	Classes of material defined in the contractor's Earned Value Management System Description and Manufacturing/Enterprise Resource Planning System Description.
MATERIAL CONTROL SYSTEM	See *Manufacturing/Enterprise Resource Planning System* and *Material Management and Accounting System*.

TERM	DEFINITION
MATERIAL MANAGEMENT AND ACCOUNTING SYSTEM (MMAS)	A system used by a contractor for the planning, controlling, and accounting for the acquisition, disbursements, and disposition of material. They may be stand-alone systems or may integrate with planning, engineering, estimating, purchasing, inventory, accounting, or other systems. See *Manufacturing/Enterprise Resource Planning System.*
MILESTONE	A zero duration schedule event marking the due date for accomplishment of a specified work scope or objective. A milestone may mark the start, an interim step, or the end of one or more activities.
NEAR-CRITICAL PATH	The lowest float or slack paths of discrete work packages and planning packages (or lower level activities) in the network that has the next longest total duration nearest to the critical path.
NEGOTIATED CONTRACT COST (NCC)	The cost negotiated in a cost-plus-fixed-fee contract or the negotiated contract target cost in either a fixed-price-incentive contract or a cost-plus-incentive-fee contract; does not contain profit or fee. NCC does not include the estimated value of undefinitized change orders, known as Authorized Unpriced Work.
NETWORK SCHEDULE	A schedule format in which the activities and milestones are represented along with the interdependencies between activities. It expresses the logic of how the program will be accomplished.
NOT TO EXCEED (NTE)	The portion of an estimated price for work scope the contractor is allowed to bill the government before reaching a final agreement on contract terms. Expenditures against this work scope are limited to this value.
ORGANIZATIONAL BREAKDOWN STRUCTURE (OBS)	The hierarchical arrangement of the organization established to manage the resources tasked with performing the work on a specific contract or program.
OTHER DIRECT COSTS (ODC)	A cost that can be identified specifically with a final cost objective that is not treated as a direct material cost or a direct labor cost.
OVER TARGET BASELINE (OTB)	A new baseline for management when the original objectives cannot be met and new goals are needed for management purposes. An overrun to the Contract Budget Base (CBB) which is formally incorporated into the Performance Measurement Baseline for management purposes. The difference between the Total Allocated Budget and CBB is the amount of the overrun incorporated into the budget.
OVER TARGET SCHEDULE (OTS)	A replanned schedule baseline that extends beyond the contract milestones and/or delivery dates. An OTS is usually accompanied by an increase in budgets resulting in a corresponding Over Target Baseline (OTB).
OVERHEAD	See *Indirect Cost.*

TERM	DEFINITION
PERFORMANCE MEASUREMENT BASELINE (PMB)	A time-phased resourced plan against which the accomplishment of authorized work can be measured.
PERFORMING ORGANIZATION	The organizational unit that applies resources to accomplish assigned work scope.
PERIOD OF PERFORMANCE (POP)	The number of working days or calendar days, from a specified commencement date to a specified completion date, as provided for in a contract.
PLANNING PACKAGE (PP)	A logical aggregation of future work within a control account that cannot yet be planned in detail at the work package or task level.
PRICE VARIANCE	A variance relative to material that is equal to the budgeted unit price less the actual unit price multiplied by the actual quantity of material used, (i.e., (Budgeted Unit Price – Actual Unit Price) x Actual Quantity.) It reflects a change between the originally budgeted price of material and the actual price.
PRICED BILL OF MATERIALS (PBOM)	See *Bill of Materials.*
PROGRAM BUDGET	The total budget for the program including all allocated budget, management reserve, and undistributed budget.
PROGRAM EVALUATION AND REVIEW TECHNIQUE (PERT) COST FORMULA	An earned value technique calculating Budgeted Cost for Work Performed (BCWP) by comparing the Actual Cost of Work Performed (ACWP) of received material to the expected total cost for that material (Estimate at Complete (EAC)) and applying the resulting percentage to the originally budgeted value for the material (Budget at Complete (BAC)), BCWP = (ACWP/EAC) x BAC.
PROGRAM TARGET COST	The program cost objective based on the negotiated contract target cost, or the management goal value of the authorized work, plus the estimated cost of authorized unpriced work.
RATE VARIANCE	A variance relative to labor that is equal to the planned labor rate less actual labor rate multiplied by the actual labor hours used to execute the effort, (i.e., (Budgeted Rate – Actual rate) x Actual Hours.) It reflects a change between the originally budgeted labor rate and the actual labor rate.
REPLANNING	A realignment of schedule or reallocation of budget for remaining effort within the existing cost and schedule constraints of the contract. In this case, the Total Allocated Budget does not exceed the Contract Budget Base, nor is the schedule adjusted to extend beyond the contractually defined milestones.
RESIDUAL MATERIAL	Material procured for a contract that becomes excess to the needs of the contract.

TERM	DEFINITION
RESOURCE PLAN	The schedule for the planned expenditure of program resources for accomplishment of program work scope
RESPONSIBILITY ASSIGNMENT MATRIX (RAM)	A chart showing the relationship between the Contract Work Breakdown Structure elements and the organizations assigned responsibility for ensuring their accomplishment. The RAM depicts the assignment of each control account to a single manager. When resource values are applied to these relationships, it may be referred to as a dollarized RAM.
RESPONSIBLE ORGANIZATION	The organizational unit responsible for accomplishment of assigned work scope.
RISK ASSESSMENT	The definition of risk management that identifies and analyzes potential program risk events in terms of probability and their consequences/impacts.
RISK/OPPORTUNITY REGISTER	A risk/opportunity management tool used by the program manager and program personnel that provides a means of recording and quantifying the identified risks/opportunities.
ROLLING WAVE	The continuous process of converting Summary Level Planning Packages into control accounts and control account planning packages into work packages.
SCHEDULE	A plan that defines when specified work must be done to accomplish program objectives on time.
SCHEDULE MARGIN	A management method for accommodating schedule contingencies. It is a designated buffer within the schedule and does not have assigned resources.
SCHEDULE RISK ASSESSMENT (SRA)	A process which uses statistical techniques to identify technical, programmatic, and schedule risks in a program and quantifies the impact of those risks on the program's schedule.
SCHEDULE VARIANCE (SV)	A metric for schedule performance on a program. It is the mathematical difference between Budgeted Cost for Work Performed and the Budgeted Cost for Work Scheduled. A positive value is a favorable condition, while a negative value is unfavorable.
SCHEDULE VISIBILITY TASKS (SVTs)	Tasks, activities or milestones in the Integrated Master Schedule (IMS) that increase management visibility and functionality of the schedule for non-Performance Measurement Baseline related items. SVTs are included in the IMS to characterize potential impacts to the logic-driven network.
SINGLE POINT ADJUSTMENT (SPA)	Process that sets existing contract cost and/or schedule variances to zero and typically accompanies a replan of all remaining effort with the goal of completing the project on schedule and on budget.
STATEMENT OF WORK (SOW)	Contractual document that defines the work scope requirements for a program.

TERM	DEFINITION
SUBCONTRACTOR	An entity in private industry which enters into a contract with a prime contractor that has entered into a contract with the government.
SUMMARY LEVEL PLANNING PACKAGE (SLPP)	An aggregation of work for far-term efforts that are not able to be identified at the control account level, but can be distributed to reporting level Work Breakdown Structure elements (and, therefore, are not "Undistributed Budget").
SYSTEM DESCRIPTION (SD)	The set or series of integrated process descriptions/procedures that describe a contractor's Earned Value Management System.
TASK/ACTIVITY	An element of work performed during the course of a program. A task/activity has an expected duration, expected cost and expected resource requirements. Some systems may define task/activity at a level below the work package while other systems do not differentiate between the two.
TOTAL ALLOCATED BUDGET (TAB)	The sum of all budgets allocated to the contract. TAB consists of the Performance Measurement Baseline and all Management Reserve. In the event an Over Target Baseline is in place, the TAB must reconcile to the Contract Budget Base and any recognized over target budget.
UNDEFINITIZED WORK	Authorized work for which a firm contract value has not been negotiated or otherwise determined.
UNDISTRIBUTED BUDGET (UB)	Budget associated with specific work scope or contract changes that have not been distributed to a control account or summary level planning package.
USAGE VARIANCE	A variance relative to material that is equal to the budgeted quantity less the actual quantity multiplied by the budgeted unit price, (i.e., (Budgeted Quantity - Actual Quantity) x Budgeted Unit Price.)
VARIANCE AT COMPLETION (VAC)	The difference between the Budget at Completion (BAC) and the Estimate at Completion (EAC) (VAC = BAC – EAC). It may be calculated at any level from the control account up to the total contract. It represents the amount of expected overrun (negative VAC) or underrun (positive VAC).
VERTICAL INTEGRATION	Demonstrates the consistency of data between the various levels of schedules and consistency of data between various Work Breakdown Structure elements and/or Integrated Master Plan/Integrated Master Schedule elements (if applicable) within the schedules.
VOLUME VARIANCE	A variance relative to labor that is equal to the budgeted labor hours less actual labor hours multiplied by the budgeted labor hours planned to execute the effort (i.e., (Budgeted Hours – Actual Hours) x Budgeted Rate.) It reflects a change between the originally budgeted labor hours and the actual labor hours.
WORK AUTHORIZATION DOCUMENTATION (WAD)	A contractor's internal process for authorizing the commencement of program work. All work within a program is described in terms of work scope, budget and schedule and authorized through the work authorization system.

TERM	DEFINITION
WORK BREAKDOWN STRUCTURE (WBS)	A hierarchical product-oriented division of program tasks depicting the breakdown of work scope for work authorization, tracking, and reporting purposes.
WORK BREAKDOWN STRUCTURE (WBS) DICTIONARY	A listing of WBS elements with a description of the work scope content in each element. The work descriptions are normally summary level and provide for clear segregation of work for work authorization and accounting purposes.
WORK PACKAGE (WP)	Natural subdivision of control accounts. A WP is simply a task/activity or grouping of work. A WP is the point at which work is planned, progress is measured, and earned value is computed.

8 REFERENCES

ITEM	DOCUMENT TITLE
(a)	Electronic Industries Alliance Standard-748, "Earned Value Management Systems, EIA-748," Current Release
(b)	DFARS Subpart 234.2, "Earned Value Management System", December 7, 2011
(c)	DFARS 234.201, "Policy", December 7, 2011
(d)	Office of Management and Budget Circular No. A-11, "Preparation, Submission, and Execution of the Budget," July 2013
(e)	FAR Subpart 34.2, "Earned Value Management System", July 5, 2006
(f)	FAR Part 234-2, "Notice of Earned Value Management System – Pre-Award IBR," July 2006
(g)	FAR Part 52.234-3, "Notice of Earned Value Management System – Post-Award IBR," July 2006
(h)	FAR Part 52.234-4, "Earned Value Management System", May 2014
(i)	DoD Instruction 5000.02, "Operation of the Defense Acquisition System," January 7, 2015
(j)	DFARS 252.234-7002, "Earned Value Management System," May 2011
(k)	Data Item Description, "Integrated Program Management Report," DI-MGMT-81861, June 20, 2012
(l)	DFARS 242.302 (a)(S-71), "Contract Administration Functions," February 28, 2013
(m)	Under Secretary of Defense Memorandum, "Use of Earned Value Management (EVM) in the Department of Defense," July 03, 2007
(n)	Under Secretary of Defense Memorandum, "Earned Value Management (EVM) Systems Performance, Oversight, and Governance," August 10, 2011
(o)	OUSD AT&L (PARCA), "Over Target Baseline and Over Target Schedule Guide," December 5, 2012