EARNED VALUE MANAGEMENT (EVM) OVERVIEW AND RECOMMENDED PRACTICES CONSISTENT WITH EIA-748-C
AACE® International Recommended Practice No. 82R-13

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TCM Framework: General Reference
7.1 – Project Scope and Execution Strategy Development
7.2 – Schedule Planning and Development
7.3 – Cost Estimating and Budgeting
7.4 – Resource Planning
7.5 – Risk Management
7.6 – Risk Management
7.7 – Project Control Plan Implementation
8.1 – Project Cost Accounting
8.2 – Progress and Performance Measurement
9.1 – Project Performance Assessment
9.2 – Project Performance Assessment
10.2 – Forecasting
10.3 – Change Management

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Note: As AACE International Recommended Practices evolve over time, please refer to www.aacei.org for the latest revisions.

Contributors:

Disclaimer: The opinions expressed by the authors and contributors to this recommended practice are their own and do not necessarily reflect those of their employers, unless otherwise stated.

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This recommended practice (RP) applies to contracts employing the Electronics Industries Alliance (EIA) - 748 Earned Value Management Systems (EVMS)\(^9\) guidelines or the equivalent. It takes precedence over other TCM Framework guidance when EIA-748 is required. It provides an overview of the concept of earned value and its application in accordance with the EIA-748-C earned value management system (EVMS) standard. EIA-748-C contains 32 guidelines that are interrelated. This RP provides an overview of the EIA-748-C guidelines 1–32 and provides a comparison with the Total Cost Management (TCM) Framework.

RECOMMENDED PRACTICE

Earned Value Unique Terminology

Earned value has some unique definitions and terminology. These are listed in RP 10S-90, Cost Engineering Terminology\(^7\).
Structure of the Overview RP

This RP will first introduce and define the 32 EIA-748-C guidelines for the use of earned value management. These guidelines are used in total for many contracts, particularly within the US government community, as well as other commercial entities.

The structure of the RP will begin with the TCM framework, compare EVMS standards and then follow the general format of the NDIA (National Defense Industrial Association) Earned Value Management Systems Intent Guide[1] into the following categories:

1. EVM within the TCM framework
2. Brief Overview of the EIA-748-C EVMS Standards
3. Introduction to Earned Value Management
4. EIA-748-C Organization: Guidelines 1-5
5. EIA-748-C Planning, Scheduling, and Budgeting: Guidelines 6-15
6. EIA-748-C Accounting: Guidelines 16-21
7. EIA-748-C Analysis and Management Reports: Guidelines 22-27

1. EVM WITHIN THE TCM FRAMEWORK

Total Cost Management (TCM) is defined as:[8]

TOTAL COST MANAGEMENT (TCM) – The effective application of professional and technical expertise to plan and control resources, costs, profitability and risks. Simply stated, it is a systematic approach to managing cost throughout the life cycle of any enterprise, program, facility, project, product, or service. This is accomplished through the application of cost engineering and cost management principles, proven methodologies and the latest technology in support of the management process. It can also be considered the sum of the practices and processes that an enterprise uses to manage the total life cycle cost investment in its portfolio of strategic assets. (1/02)

Figure 1 shows an overview of the TCM process.
Earned value is focused on the project portfolio phase. Earned value integrates technical, schedule, and cost budgeting and performance measurement within a project framework, however many of the principles are found within the TCM framework. This RP will describe the earned value basics. The following table provides the framework of TCM as it relates to earned value and highlights areas of the EIA-748-C EVM standard that are not specifically addressed within the TCM framework.

2. BRIEF OVERVIEW OF THE EIA-748-C EVMS STANDARD

The following tables describe the 32 guidelines within the five categories of the EIA-748-C standard showing how they relate to specific section(s) of the TCM Framework.
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<th>General Title</th>
<th>General Description</th>
<th>Related to the TCM areas:</th>
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</table>
| 1  | Define Work Breakdown Structure (WBS). Identify the work elements for the project scope. For this task, a work breakdown structure is often employed. | Define all elements of work for the project. This is typically done using a WBS.  
- The WBS is a product oriented description of activities describing the project work scope that allows for work authorization.  
- The WBS breaks down and organizes all work for budgeting, planning, scheduling, cost accounting, work authorization, tracking, measuring progress, management control, and reporting purposes. | 7.1 - Project Scope and Execution Strategy Development                                    |
| 2  | Identify Organizations. Identify the program organization structure including major subcontractors responsible for accomplishing the work. In addition, define those in the organization who plan and control the work. | Identify and define the organization elements responsible for accomplishing the project work as well as those managing and controlling the work.  
- The organization breakdown structure (OBS) helps define the groups within the organization that provides the resources, plan, and budget to perform the work.  
- This includes subcontracted work. |                                                                           |
| 3  | Integrate Subsystems. Integrate planning, scheduling, cost accounting and work authorization activities including (where appropriate) the WBS and OBS. | Integrate the project technical cost and schedule elements through the appropriate project documents. Provide a logical framework for all project cost, schedule, budgeting, and work authorization activities. | 7.1 - Project Scope and Execution Strategy Development 8.1 - Project Control Plan Implementation |
| 4  | Identify Overhead Control. Identify the program elements responsible for indirect costs. | The new overhead burdens are distributed across the organization. | 9.1 - Project Cost Accounting 8.1 - Project Control Plan Implementation                     |
| 5  | Integrate WBS and OBS. Integrate the OBS and WBS in a manner that permits the cost and schedule performance. | Allow for the integration of cost and schedule activities through the WBS and OBS in such a fashion that project performance can be accurately measured through either structure as needed.  
Only a single CA should be at the intersection of the WBS and OBS.  
The CA identifies all supporting activities.  
Estimated costs should be apparent. | 8.1 - Project Control Plan Implementation                                              |
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<th>#</th>
<th>General Title</th>
<th>General Description</th>
<th>Demonstrated in the following products:</th>
<th>Related to the TCM areas:</th>
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| 6 | Schedule Work. | Schedule all of the activities of the authorized work for the project. | • Integrated schedules  
• Control account (CA) plans  
• Work authorization documents (WADs)  
• Risk/opportunity Register | 7.2 - Schedule Planning and Development  
8.1 - Project Control Plan Implementation |
|   |               | Identify significant task interdependencies Ensure there is vertical and horizontal integration between the scheduled activities for the work packages, planning work packages and the work breakdown structure (WBS) and organization breakdown structure (OBS). | | |
| 7 | Identify Products/Milestones. | Maintain the ability to determine technical accomplishment while being able to status progress. | • Integrated schedules  
• CA plans  
• WADs  
• Control and modifications | 7.2 - Schedule Planning and Development  
7.3 - Cost Estimating and Budgeting  
7.4 - Resource Planning |
| 8 | Set Time-Phased Budget. | The assignment of resources to the scheduled sequence of work is the performance measurement baseline (PMB). The PMB could be put into practice soon after the contract is awarded (it should definitely be in place after the termination to proceed).  
• PMB is derived from the contract baseline through the separation of management reserve.  
• Care should be taken to ensure that resources are meted out in a controlled manner.  
• There should not be an inadvertent front-loading of the PMB.  
• Summary level planning packages (SLPPs) may need to be created in order to allow for work that will need to be finalized as the project progresses.  
• Care must be taken to avoid an over target baseline (OTB). Prior notice of an OTB needs to be made to the customer if it is to be used for performance reporting. | • CA plans  
• SLPPs  
• WADs  
• Undistributed budget (UB) log  
• Notification of OTB  
• PMB  
• Integrated program management report (IPMR) | 7.2 - Schedule Planning and Development  
7.3 - Cost Estimating and Budgeting  
7.4 - Resource Planning  
8.1 - Project Control Plan Implementation |