

AACE
INTERNATIONAL
**RECOMMENDED
PRACTICE**

125R-22

**DEVELOPING WORK PACKAGES
AND PLANNING PACKAGES IN
SUPPORT OF PERFORMANCE
MANAGEMENT**

SAMPLE

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DEVELOPING WORK PACKAGES AND PLANNING PACKAGES IN SUPPORT OF PERFORMANCE MANAGEMENT

TCM Framework: 7.1 - Project Scope and Execution Strategy Development

7.2 - Schedule Planning and Development

8.1 - Project Control Plan Implementation

9.1 - Project Cost Accounting

9.2 - Progress and Performance Measurement

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

Any terms found in AACE Recommended Practice 10S-90, *Cost Engineering Terminology*, supersede terms defined in other AACE International products, including but not limited to, other recommended practices, the *Total Cost Management Framework*, and *Skills & Knowledge of Cost Engineering*.

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1. INTRODUCTION

This recommended practice (RP) discusses control accounts (CAs) at a high level and describes the purpose, development, and management of both work packages (WP) and planning packages (PP) in support of performance management in any project or contract environment. This RP also discusses some basic background for work package design development and execution, which is based on the decomposition of project scope elements as defined in the statement of work (SOW). The RP's recommendations apply to projects as described but can be used similarly for programs.

This RP provides guidance regarding the development and use of a project budget. This includes the use of control accounts that are subdivided into WPs as well as PPs. The RP presents typical examples for a WP. The RP also recommends that, to the extent practical, all work should be divided into work packages using dollars, hours, or other measurable units. Work packages are developed and used for engineering, procurement, installation, etc. If this is not feasible for far-term activities, planning packages should be created for budget and scheduling purposes.

Progress is compiled and summarized at the control account level, with the control accounts typically sub-subdivided into smaller packages for measuring, analyzing, and reporting on the actual work completed. Budgets for near-term discrete work will be included through work packages in terms of monetary amounts or hours with far-term effort included in planning packages. The sum of the work packages and planning packages within a control account must equal the overall approved control account budget. Work package authorization should be obtained before work begins through a clearly defined process identifying the responsible manager, the time frame of the work package/control account, and the resources necessary to complete the work. This work package authorization is typically done via a work authorization document or similar document. This RP's section on work package authorization includes an example of a work authorization document, which should be formatted following the organization's guidance and procedures.

The intent of this RP is to document what many practitioners would consider to be good practices that can be relied on and would be recommended for use when application of the WPs and PPs in preparation of a performance measurement baseline (PMB) is required. The intended audience includes project managers, cost professionals, project controls professionals, and earned value practitioners who may develop and/or use the WPs and PPs as parts of the project or program planning process.

This RP is aligned with the *Total Cost Management™ Framework* [1], as well as the *Electronics Industries Alliance (EIA) - 748 Earned Value Management Systems (EVMS)* guidelines [2]. (Guidelines 5, 9, 10, 11, and 12.) Typical deliverables for these guidelines include:

- Guideline 5, Integrate WBS to Create Control Accounts: Contract Performance Reports
- Guideline 9, Budget by Cost Elements: Cost and Resource Loaded Schedule
- Guideline 10, Create Work Packages, Planning Packages: Work Package Categories
- Guideline 11, Sum Detail Budgets to Control Account: Planning Package Budget
- Guideline 12, LOE Planning and Control: Control Account Plans

This recommended practice is intended to provide guidelines (i.e., not a standard) for the development of CAs, WPs, PPs, and summary-level planning packages (SLPPs) based on the decomposition of the scope of the project statement of work (SOW). Most practitioners would consider and recommend these guidelines as good practices for the target audience to rely upon in total cost management.

This RP is aligned with other AACE RPs that address the topics in this RP, notably:

- 20R-98, *Project Code of Accounts* [3]
- 33R-15, *Developing the Project Work Breakdown Structure* [4]
- 79R-13, *Level of Effort Planning and Execution on Earned Value Projects - Within the Framework of EIA-748* [5]

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- 83R-13, *Organizational Breakdown Structure and Responsibility Matrix* [6]
- 82R-13, *Earned Value Management (EVM) Overview and Recommended Practices Consistent with EIA-748-C* [7]
- 108R-19, *Accounting Considerations for Cost Control* [8]

2. RECOMMENDED PRACTICE

2.1. What is a Control Account?

The TCM Framework notes, “A key concept for project control plan implementation is the control account that functionally integrates the project control plan components (i.e., cost, schedule, resources, risk, and procurement).” [1, p. 221] The control account (CA) establishes the interface between the work breakdown structure (WBS) and organizational breakdown structure (OBS). The WBS defines the decomposition of the scope of work elements. The OBS establishes the responsible party or planning and executing each element’s scope of work. The CA is used to establish the responsibility, budget, and resources for each scope element. Control accounts are essential for managing cross-functional dependencies within a project, particularly when multiple teams, such as procurement, engineering, and construction, are involved. By aligning work packages with these dependencies, control accounts help ensure that the project’s critical paths and key deliverables remain on track. A control account may include one or more work packages that are in the same branch of the WBS hierarchy and for which the same person in the OBS is responsible. They provide an integrated basis for project control for the defined phase of work and may be generated in a phased manner. See Figure 1 below.

Control accounts and control account managers are described in RP 83R-13, *Organizational Breakdown Structure and Responsibility Assignment Matrix*. [6] As part of organizing work in support of performance management, the planning, scheduling, budgeting, work authorization, and cost collection processes should all be integrated.

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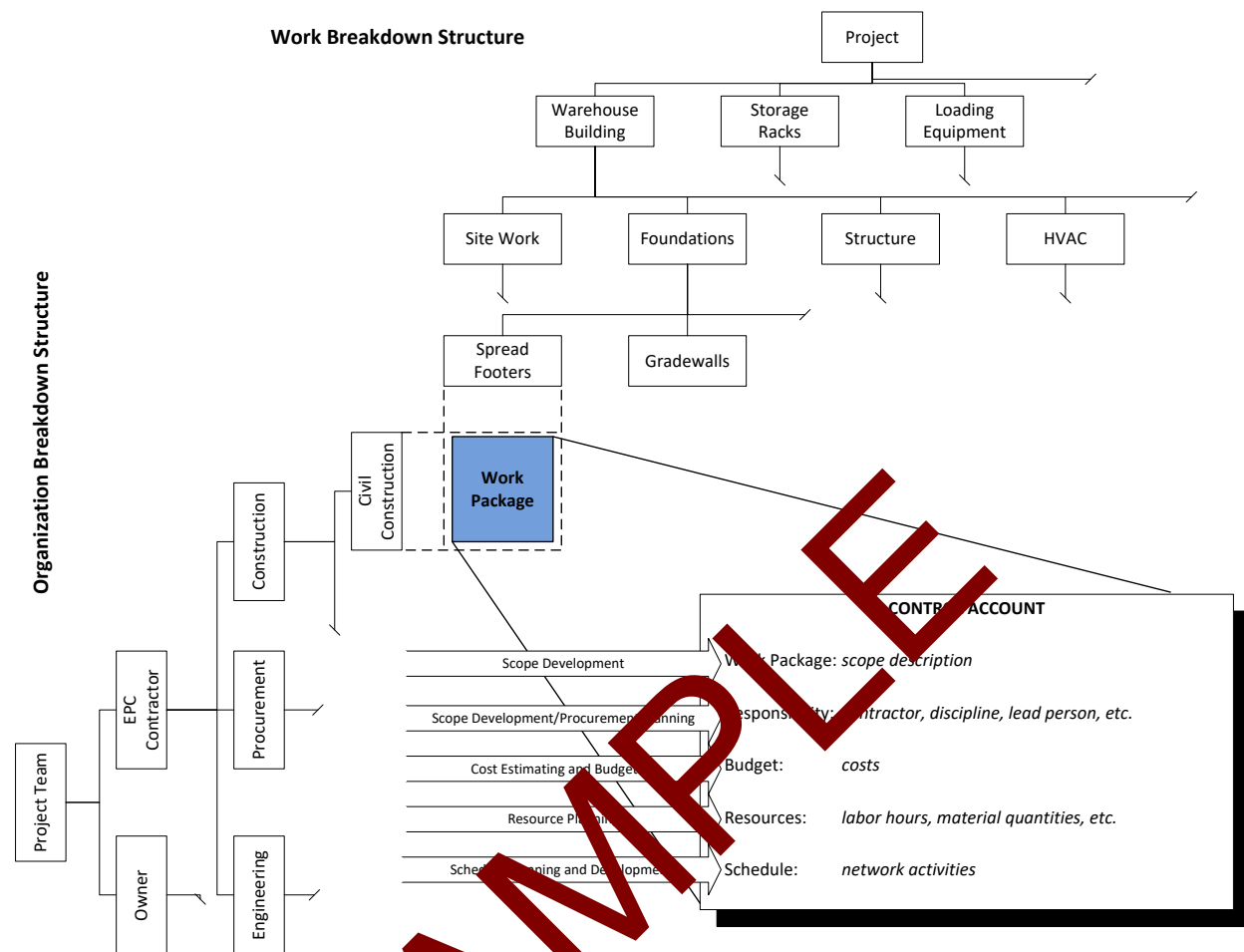


Figure 1. Matrix of EIA-748 Guidelines: "Integrate WBS/OBS to Create Control Accounts" [1, p. 222]

Control accounts provide a summary level at which an individual manager or department may control and monitor both project costs and project performance. Control accounts should be defined and developed as early as possible in the planning process, using a clear reporting structure that ensures data alignment with defined points of contact, regular reporting intervals, and clearly defined responsible parties. Once established, CAs may be broken down into planning packages during the initial planning on a project. These planning packages may be further broken down into work packages during the detailed planning phase of a project. This method is especially prevalent when rolling phase or rolling wave planning is used to progressively elaborate the work scope of a project. The use of rolling wave planning is often used due to a lack of specific scope definition at the early phases of a project. This does not suggest that the lack of detail justifies a failure to develop an adequate schedule. Schedule development should match the maturity level of scope definition. Progressive elaboration is continued as scope definition matures. This practice will ensure the schedule serves as a useful baseline for planning and schedule classification.

Managing control accounts can become complicated. As an example, when there is a need to make bulk purchases for materials that will be used in multiple work packages, some thought should be made how best to handle this issue when the CA system is developed. In addition, WPs related to systems and assets may require revision as scope definition matures related to phasing and locations. Allowing for flexibility in the creation of the process and the development of CAs, WPs, and PPs will facilitate the management of the accounts.

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2.2. What is a Work Package?

Work packages represent the scope of work at the level where work is performed or aggregated and have the following characteristics:¹²

- Are clearly distinguishable from all other work packages.
- Are assigned to a single organizational element.
- Have costs that will settle to one asset and/or cost code in the CA.
- Consist of a component of work producing a single deliverable.
- Consist of one or more schedule activities that accumulate to produce the work package deliverable, which summarizes the total cost and duration of the activities included in the work package.
- Include scheduled start and completion dates; and as applicable, interim milestones, all of which are representative of work to be accomplished.
- Have a time-phased budget or value expressed in terms of dollars, labor hours, or other measurable units that are substantiated in terms of supporting project plans.
- Have a specific technique for determining the value of the work accomplishment of in-process work.
- 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.
 - As a general “rule of thumb,” the work package duration should not be more than twice the project’s reporting cycle and not less than one day.
 - Are identified within the integrated master schedule (IMS) and other supporting schedules.
- Are used for a variety of purposes: engineering, procurement, contracting, project execution, and/or installation at the workplace.

As an example, in construction, work packages used at the workplace are often called field installation work packages. They are commonly limited to a maximum number of hours of installation or duration so that they can be planned, executed, and completed by a small crew, and reported accurately. While work packages are often designed to follow the sequence or path of construction, they may also be some scope related to systems that span across multiple logical work packages that require careful design.

2.3. What is Project Control Plan Implementation?

The use of control accounts is vital to implementation of the project controls plan, and aligns with EIA-748 Guideline 12, “LOE Planning and Control” where the deliverable is the control account plan. The project controls plan is defined in Recommended Practice No. 60R-10, *Developing the Project Controls Plan*, as a “plan to implement an integrated set of work processes, procedures, and applications to plan, monitor, execute and control the work.” [9, p. 1] At the conclusion of project control plan implementation, the project control plan will have been documented and communicated to the project team. Those responsible for work packages will understand their control responsibilities and their control accounts and project control systems and tools will be set up and ready to support the project control measurement, performance assessment, forecasting, and change management processes. The project control plan should provide guidance for integrated risk management as work packages are developed.

Implementation is the process of integrating all aspects of the project controls plan to ensure that the plan supports project control. The process facilitates project control communication for the current phase to the stakeholders responsible for execution of the scope of work ensuring subsequent phases are addressed in the plan. The project control plan should allow for integration of scope changes seamlessly. This requires a change control process that

¹ Similar listing of characteristics of work packages can be found in the EVMS Education Center “EVM Glossary Terms” under “Work Packages (WP)”, by Humphreys Associates, online resource. <https://www.humphreys-assoc.com/evms-education-center-glossary>

² A concise definition is provided in 10S-90.

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provides the flexibility to update the control account and work packages as necessary. Regular reviews should be conducted to ensure the project remains on track and in line with its performance management baseline.

2.4. Establishing a Budget

Budgets are established by cost elements, which are defined as basic units of planning such as: labor, travel, material, subcontracts, and other cost categories as applicable, particularly in earned value management. 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 (e.g., approved, provisional, proposed) when establishing a valid performance measurement baseline (PMB). Control account budgets are time-phased consistent with the project schedule; material budgets are time-phased as appropriate; and subcontractor budgets are time-phased to support project schedule requirements.

Control accounts are defined as: “A management control point where earned value measurement takes place”. [10] Since the lowest level of the cost breakdown structure (CBS) has assigned responsibilities and defines the cost center, the CBS should be aligned with the WBS for consistency and optimal application. The cost and schedule used to develop the performance management baseline is based on and organized by the WBS. Control accounts will generally be a roll-up of the work packages, which will be a roll-up of the detailed schedule activities. This ensures vertical traceability in the schedule and horizontal traceability using the WBS from schedule to cost.

Work packages and planning packages are an integral part of the performance management baseline and accumulate into the budget. See Figure 2 below for an illustration of a typical project cost and price structure for a project performance baseline based on the EIA-748 Standard. The level containing the WP and PP sections is circled. See Section 2.7, Planning Packages, for a definition and explanation of summary level planning packages (SLPP).

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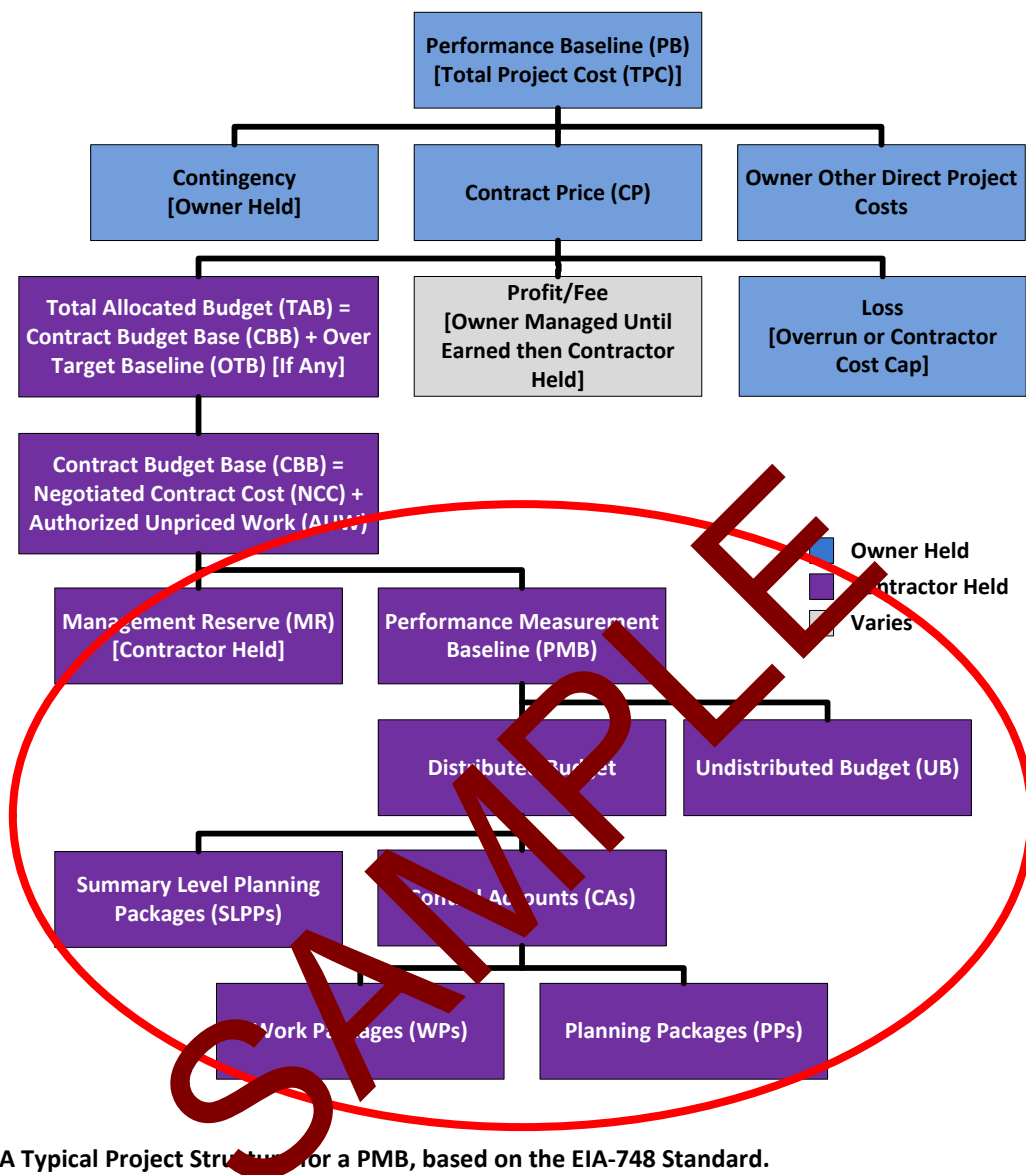


Figure 2. A Typical Project Structure for a PMB, based on the EIA-748 Standard.

Another way of looking at the control accounts is from an alignment view, see Figure 3 for an example.

Contract Price (CP)		
Contract Budget Base (CBB)		Target Fee / Profit
Total Allocated Budget (TAB)		
Performance Measurement Baseline (PMB)		Management Reserve (MR) (Contractor Held)
Distributed Budget	Undistributed Budget (UB)	
Control Accounts (CAs) / Summary Level Planning Packages (SLPPs)		
Work Packages (WPs)	Planning Packages (PPs)	

Figure 3. Work Package Structure that Aligns with the EIA-748 Standard