



Detailed Planning



The performance measurement baseline is established at the control account level, although some far term work may not be planned to that level at the outset. The control account represents a significant amount of work. Control accounts often average about a year in duration, and it may not be possible to plan program activities to that level of detail from the very beginning.

The **Control Account** is like a mini program, having a defined scope of work, a schedule, and a budget, and is interrelated with other control accounts. The control account manager must construct a plan that ensures the timely accomplishment of the work for the allocated resources. Work definition, responsibility assignment, scheduling and budgeting apply also to the control account. The work must be broken down into tasks, performing organizations or individuals must be identified, and performance targets must be assigned in terms of completion dates and resources available.

At the conclusion of this lesson you will be able to identify the elements and purpose of a control account.



Work Packages

The control account has a designated manager -- the **Control Account Manager (CAM)** --who has the responsibility and authority to plan, schedule, and budget and oversees the accomplishment of the work. Control accounts are subsequently broken down into work tasks or lower level jobs, commonly referred to as **work packages**.

The term work package is generic and should not be something new that must be created. Work assignments are normally made via some kind of task assignment sheet or work orders (either hard copy or computer screen).



Figure 7-1: Control Account

TASK	BUDGET	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	200		▼	▼	▼								
2	300		▼	▼	▼	▼	▼						
3	100					▼	▼						
4	450			▼	▼	▼	▼	▼					
5	45			▼	▼	▼	▼						
6	205	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼
7	675							▼	▼	▼	▼	▼	▼
8	525							▼	▼	▼	▼	▼	▼

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A control account planning sheet usually serves as the CAM's "master schedule", budget control log and record of accomplishments. **Figure 7-1** shows a simplified control account plan.



Types of Work Packages

Work packages can have different names: Engineering Task Authorizations, Work Authorization Documents, Shop Orders, Fabrication Orders, Purchase Orders, etc. In most cases, these documents serve as work packages because they are used for assigning and controlling the work to be done. A work package could be an engineering drawing or a set of drawings. It could be:

- the conduct of a test; the fabrication of a unit
- the development of a specification
- the writing or testing of a certain number of lines of software code
- the conduct of an analysis study; the assembly of material kits
- the inspection of items in progress; or of completed items, etc.

The preferred definition of work is in discrete work packages. A discrete work package is simply a defined task or set of tasks that has a completed product or end result. It is a job that can be described, scheduled, budgeted (in terms of dollars, man-hours or other measurable units), and measured while it is in progress and at its completion.

The concept of short span work packages sometimes causes concern about the amount of detail and paperwork in the system. But it must be recognized that all work eventually has to be defined, planned, assigned, managed and reported. Work should not be turned on and off by informal direction and without accountability, so the feeling that work packaging is too onerous, burdensome, or difficult is not consistent with general practice.



Resource Loaded Schedules and Networking

In lieu of work packages, some companies use resource loaded schedules for Earned Value Management; the idea being to create detail level networks and assign a budget value to each activity on the network. As activities are accomplished, the assigned values are earned and compared to actual costs.

This approach goes back to a Department of Defense/NASA concept called [PERT](#) Cost developed during the early 1960's. It is a workable approach but, if care is not exercised, can be more detailed and difficult to maintain than work packages, one of which may cover several activities in a detailed network. Another problem with this approach is that network activities do not always lend themselves to tracking costs (many are "dummy" activities).

PERT

PERT is the Program Evaluation Review Technique approach to network scheduling.



Resource Loaded Schedules and Networking (Cont.)

Networking is not always the preferred scheduling technique for the type of effort involved, and detail level networks can be difficult and cumbersome for lower level managers to deal with. Problems such as these, in fact, led to the development and incorporation of WBS and work packaging concepts into PERT Cost because they were cleaner and simpler to use for work planning, control and measurement. PERT Cost ultimately was replaced by the Cost/Schedule Control Systems Criteria (C/SCSC) approach now known as [Earned Value Management Systems \(EVMS\)](#), which was a more flexible expression of performance measurement requirements that capitalized on existing systems rather than imposing specific management techniques. The EVMS has been in use, essentially unchanged, since December 1967.

It should be pointed out that modern computer hardware and software have made the resource loaded network approach more viable today than when PERT Cost was in use, and many of today's program management software packages are based on this approach. However, these programs also recognize the need for and include the integration of network schedules with work packages and control accounts to provide for effective planning, control and reporting. Unfortunately, all work cannot be planned into short span, discrete work packages. Supporting efforts, such as program management, are not amenable to work packaging, and because they continue over protracted periods of time, activities cannot be scheduled, and there are no final products. These Level-of-Effort activities usually cannot be measured except through the passage of time, although cost variances can be determined for the resources applied.

Earned Value Management Systems (EVMS)

The term Earned Value Management System (EVMS) and the departure from the more rigid C/SCSC approach was formally documented and ultimately endorsed by government and industry with the release of the Industry Standard EIA-748 in 1996.



Level-of-Effort and Apportioned Effort

Level-of-Effort tasks should be segregated from measurable activity, either within the control account or in separate control accounts, to avoid distorting the determination of work accomplished that is based on work package completions. Work classified as Level-of-Effort should also be kept to a minimum since it is not being measured in an objective fashion.

Another kind of activity that must be accommodated is **Apportioned Effort**, sometimes called factored effort. Many inspection activities are dealt with on an apportioned basis. For example, a manufacturing work package requires inspection prior to its completion. Rather than create a separate work package, the budget for the inspection activity can be included in the manufacturing work package as a percentage of the overall budget and that amount can be earned automatically as the work package is accomplished. If desired, a separate work package can be established with its budget a percentage of the budget for the task to which it is apportioned. As the primary task is accomplished, the value of the apportioned effort task is earned concurrently.



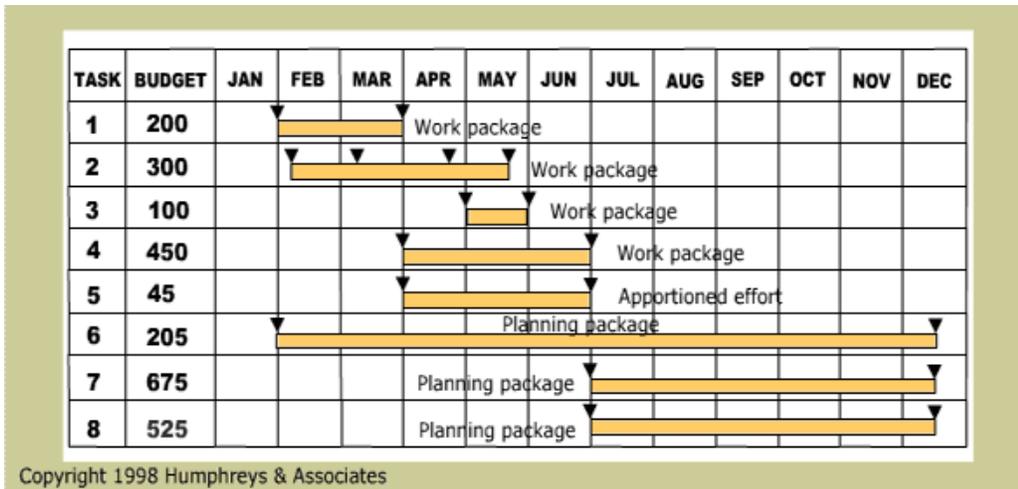
Planning Packages

In the event that all work within the control account cannot be planned as work packages, larger packages called **Planning Packages** may be used.

Planning packages are often used to define, to the extent possible, the downstream work in a control account that cannot be planned into work packages at the outset. The main idea behind planning packages is to tie budget and work together as soon as possible. Otherwise, the downstream work might remain undefined and the budget needed for that work could possibly be used to deal with current or near-term problems.



Figure 7-2 Control Account Plan



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Key milestones or events which can be identified within planning packages must be included in logical schedules or no real critical path exists. **Figure 7-2** illustrates how a control account can be organized into different kinds of effort.

Long Description

Figure 7-2 is the same spread sheet used in 7-1, with each task labeled as Work Package (4), Apportioned Effort (1), or Planning Package (3)



Detailed Planning Knowledge Review

What is an integrated, defined, scheduled, and budgeted task or set of tasks, with a measurable product or end result?

- Work package
- Apportioned work
- Level of effort
- Purchase order

Correct. Work package is an integrated, defined, scheduled, and budgeted task or set of tasks, with a measurable product or end result.



End of Lesson

You must click the **Next** button in order to receive credit for this lesson.