5th Lecture

Topics Today:

1. **Determine Budget Process. (Inputs, Tools & Tech)**

7.3 Determine Budget

Determine Budget is the process of aggregating the estimated costs of individual activities or work packages to establish an authorized cost baseline. The key benefit of this process is that it determines the cost baseline against which project performance can be monitored and controlled. The inputs, tools and techniques, and outputs of this process are depicted in Figure 7-6. Figure 7-7 depicts the data flow diagram of the process.

7.3 Determine Budget

Input (9)
- Cost management plan
- Scope baseline
- Activity cost estimates
- Basis of estimates
- Project schedule
- Resource calendars
- Risk register
- Agreements
- OPA

Tools & Techniques (5)
- Cost aggregation
- Reserve analysis
- Expert judgment
- Historical relationships
- Funding limit reconciliation

Outputs (3)
- Cost baseline
- Project funding requirements
- Project documents updates

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Activity Cost Estimates

Quantitative assessments of the probable costs required to complete project work. (summary form or in detail)

Cost estimate for **each activity** → Activity Grouping → Cost estimate for each **Work package**

Direct Cost   Indirect Cost   Variable cost   Fixed Cost

Basis of Estimates

The supporting documentation should provide a clear & complete understanding of how cost estimate was derived.

Documentation consist of :

Method of estimations

All assumptions made

Any known constraints

Scope of Work

Resource Calendars

Identifies the working days and shifts on which each specific resource is available.

Provides details about when & how long identified project resource will be available

Determine resource cost

7.3.1.6 Resource Calendars

Described in Sections 9.2.3.2 and 12.2.3.3. Resource calendars provide information on which resources are assigned to the project and when they are assigned. This information can be used to indicate resource costs over the duration of the project.

Agreements

Provide information about resource costs like Human resource cost, equipment costs etc

Provide payment milestone of each agreements

Project can have one or more agreements

7.3 Determine Budget-> Tools & Techniques

Cost Aggregation

Reserve Analysis

Expert Judgment

Historical Relationships

Funding limit Reconciliation

Cost Aggregation

It is the accumulation of single costs following the structure of the WBS (and the distribution of payments with respect to the schedule base line)

Cost estimates are aggregated by Work packages -> Higher component levels (control accounts) -> Entire project.

Project (Level4)	500 K
Component/control Account (Level3)	200 K 300K
Work Package (Level2)	100 100 100 150 50
Activity (Level1)	100 50

Historical Relationships

Any historical relationships that result in parametric estimates or analogous estimates

It uses project characteristics (parameters) to develop mathematical models to predict total project costs.

Simple
- Home construction -> Cost per square meter

Complex
- Software development Model -> Multiple separate adjustment factors, each of which has numerous points within it (code, integrations, function points, technology, data migration etc.)

Reliable when:
- Accurate Historical information is available
- Quantifiable parameters
- Scalable models (Can work with Large, small or phases of the projects)

Funding limit Reconciliation

The expenditure of funds should be reconciled with any funding limits on the commitment of funds for the project.

A variance between funding limits and planned expenditures will sometimes necessitate rescheduling of work to level out the rate of expenditures.

This is accomplished by placing imposed date constraints for work into the project schedule.

	Q1	Q2	Q3	Q4
Project planned expenditure	100K	100K	100K	100K
Actual project cost	124K	125K		

Project is moving fast ahead of schedule & within Budget, however Management has Imposed Quarterly Funds limit hence project has to re-schedule & slow down.

Output of Determine Budget Process

1. Cost Performance Base Line.

   A time-phased budget. It is used to measure and monitor cost performance. It include all authorized budgets but exclude management reserves. Info for project funding requirements

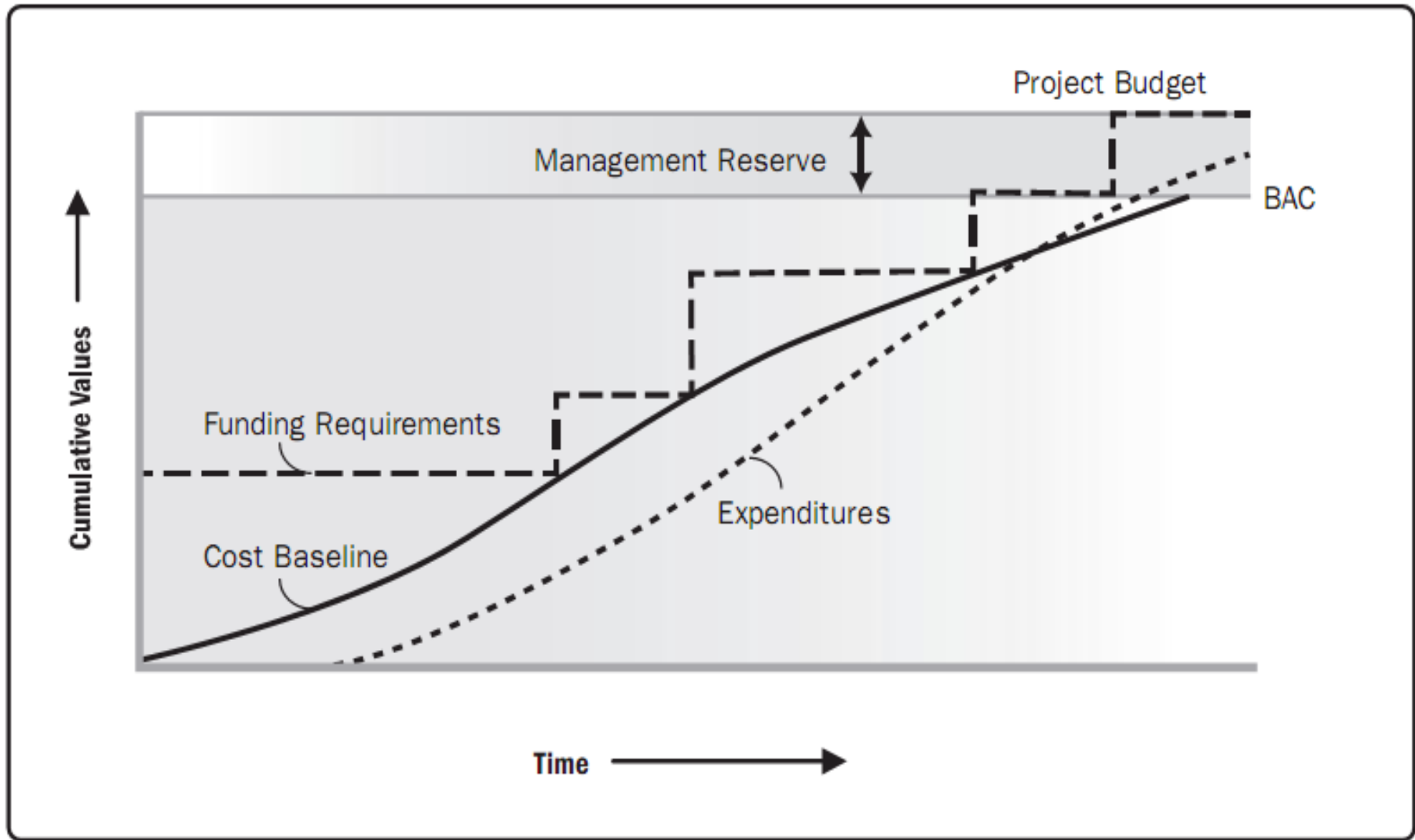2. Project Funding Requirements.

3. Project Document Updates.

Figure 7-9. Cost Baseline, Expenditures, and Funding Requirements