Cost Planning and Performance

Gido & Clements
Chapter 13
Learning Objectives

- Items to consider when estimating cost
- Preparation of a baseline budget
- Cumulating actual costs
- Determining the earned value of work performed
- Analyzing cost performance
- Forecasting project cost at completion
- Controlling project costs
- Managing cash flow
Real-World Discussion

■ According to Arild Sigurdsen, poor cost control often puts a project in danger of exceeding the budget.

■ He offers the following insights:
  ◆ Many overruns stem from poor estimates.
  ◆ Many companies have no rules for developing cost estimates and cost-control techniques.
  ◆ Many people believe overruns are unavoidable.
Project Cost Estimates

- Cost planning starts with the proposal.
- The cost section may include:
  - Labor
  - Materials
  - Subcontractors and consultants (if used)
  - Equipment and facilities rental
  - Travel
Project Budgeting: Two Steps

1. The project cost estimate is allocated to the various work packages in the project work breakdown structure.

2. The budget for each work package is distributed over the duration of the work package.
Allocating the Total Budgeted Cost

- Allocating total project costs for the various elements to the appropriate work packages will establish a total budgeted cost (TBC) for each work package.

- There are two approaches to establishing the TBC for each work package: top-down and bottom-up.

- When all budgets are summed, they cannot exceed the TBC.
Developing the Cumulative Budgeted Cost

- The second step is to distribute each TBC over the duration of its work package.
- A cost is determined for each period.
- The cumulative budgeted cost (CBC) is the amount that was budgeted to accomplish the work that was scheduled to be performed up to that point in time.
- One uses the CBC as the standard against which actual cost is compared.
Determining Actual Cost

- Track actual cost by establishing a system to collect data on funds actually expended.
- Periodically assign a portion of the total committed cost to actual cost.
- Total actual and committed cost by work package for comparison to the CBC.
- Cumulative actual cost (CAC) should be calculated.
Determining the Value of Work Performed

- Earned value is the value of the work actually performed.

- Determine earned value by collecting data on the percent complete for each work package.

- Convert this percentage to a dollar amount by multiplying the TBC of the work package by the percent complete.
Cost Performance Analysis: Four Measures

1. TBC (total budgeted cost)
2. CBC (cumulative budgeted cost)
3. CAC (cumulative actual cost)
4. CEV (cumulative earned value)
Cost Performance Index (CPI)

- A measure of the cost efficiency with which the project is being performed.

- Cost performance index  = F(Cumulative earned value, Cumulative actual cost)

  - CPI = F(CEV,CAC)
Cost Variance (CV)

- The difference between the cumulative earned value of the work performed and the cumulative actual cost.

- Cost variance = Cumulative earned value – Cumulative actual cost

- \[ CV = CEV - CAC \]
Cost Forecasting: Three Methods

- Three methods for determining forecasted cost at completion (FCAC):
  - $\text{FCAC} = F(\text{Total budgeted cost, Cost Performance index})$
  - $\text{FCAC} = \text{Cumulative actual cost} + (\text{Total budgeted cost} - \text{Cumulative earned value})$
  - $\text{FCAC} = \text{CAC} + \text{Re-estimate of remaining work to be performed}$
Cost Control

- The key is to analyze cost performance on a regular and timely basis.

- Identify cost variances and inefficiencies early.
Cost Control (Cont.)

- Involves the following:
  - Analyzing cost performance to determine which work packages may require corrective action.
  - Deciding what corrective action should be taken
  - Revising the project plan.
Ways to Reduce Costs of Activities

- Substitute less expensive materials.
- Assign a person with greater expertise to perform or help with the activity.
- Reduce the scope or requirements.
- Increase productivity through improved methods or technology.
Managing Cash Flow

- Make sure that sufficient payments are received from the customer in time for you to cover the costs of performing the project.

- The key to managing cash flow is to ensure that cash comes in faster than it goes out.
Project Management Software

- All costs associated resources can be stored. The software calculates the budget for each work package and for the entire project.
- Allows the user to define different rate structures for each resource and when charges for those resources will be accrued.
- Cost tables and graphs are available to help analyze cost performance.