



QUANTIFYING THE FUTURE



The Living Estimate

Leveraging LCCEs Throughout the Program Lifecycle

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Introduction

- Cost Estimates and Cost Estimators are instrumental in the planning process
 - Approval, budgeting, et al.
 - AoA
 - Source Selection
- But what about during execution?
 - How can cost estimators add value to a program control team?

Why Cost Estimates?

“Cost estimating is a management tool used to help decision makers evaluate resource requirements at key milestones and decision points. It is not an end in itself, but is part of a total systems analysis process that includes programmatic, technical, and schedule analysis. Cost estimating supports various decision-making processes, including determining whether a program is viable, how it should be structured, and what resources are required to support it. It is used to help establish and defend budgets for these resources. It can be applied as a tool to evaluate the cost implications of alternative systems when conducting an Analysis of Alternatives (AoA).”

- Module 1, “Cost Estimating Basics”, CeBOK v1.1

Characteristics of a Good Cost Estimate

Characteristic	Description
Clear Identification of Task	Provided clear description of system, ground rules, assumptions, constraints
Broad Participation	All stakeholders involved in definition. Data should be independently verified.
Availability of Valid Data	Numerous sources of relevant data should be used. Relevant historical data from similar systems should be used.
Standard Structure	Standard WBS which gets refined as estimate matures
Provision for Program Uncertainties	Uncertainties identified and allowances made to account for cost effect
Recognition of Inflation	Account for inflation and escalation in life cycle estimates
Recognition of Excluded Costs	All costs included. Excluded costs should have rationale.
Independent Review	Independent reviewer should verify, modify and correct and estimate to assure completeness, realism and accuracy
Revision of Estimates for Significant Program Changes	Update estimates for changes in system requirements

Source: *GAO Cost Estimating and Assessment Guide*

Key DURING execution

Cost Estimating Process

Figure 1: The Cost Estimating Process

Initiation and research

Your audience, what you are estimating, and why you are estimating it are of the utmost importance

Assessment

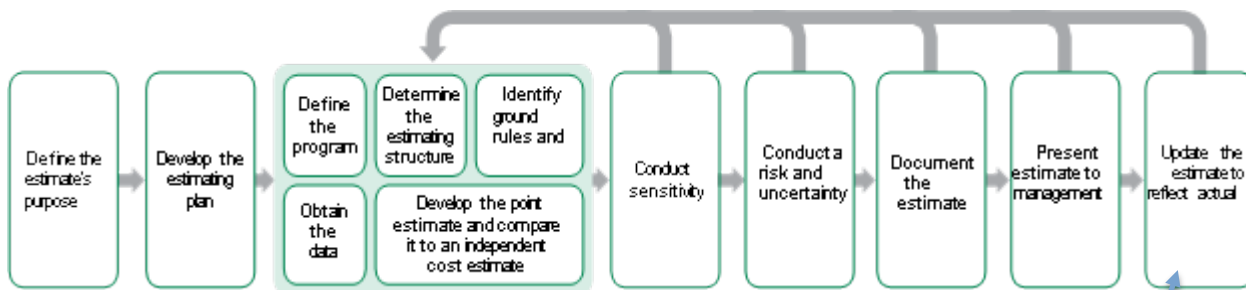
Cost assessment steps are iterative and can be accomplished in varying order or concurrently

Analysis

The confidence in the point or range of the estimate is crucial to the decision maker

Presentation

Documentation and presentation make or break a cost estimating decision outcome



Source: GAO Cost Estimating and Assessment Guide

Continuing updating the estimate!

The Program Is Approved! Now What?

- Cost Estimating Activities
 - Start of Execution
 - Establishing the Program Baseline
 - Setting up EVM
 - During Execution
 - Changes in Program Scope
 - Revisions to Estimates
 - Budget Formulation

Establishing the Program Baseline

- Prime Contractor Baseline vs Program Office Baseline?
 - Aren't these the same?
 - Simpler programs, the prime contractor implementing the solution
 - A large system integration effort, program baseline much different
 - There may even be multiple prime baselines
- Cost estimate backbone to program baseline

Setting Up EVM

- Going from WBS → Control Accounts
 - Defining Activities and Subactivities
 - Duration
 - Resources
 - Budget
- “Rolling Wave” Planning
 - Planning Packages defined
 - Defining Cost
 - Trace to Baseline

Changes During Execution

- Changes in Scope
 - ID/IQ Contracts
 - Defining Task Orders
 - Engineering Change Proposal
- All require cost estimation
 - Task Orders, ECPs require Independent Government Cost Estimate (IGCEs)
 - Support negotiations with vendors
- Annual Budget Formulation
- Management Reserve
 - How do we categorize changes vis a vis baseline?
 - Was this in the budget?

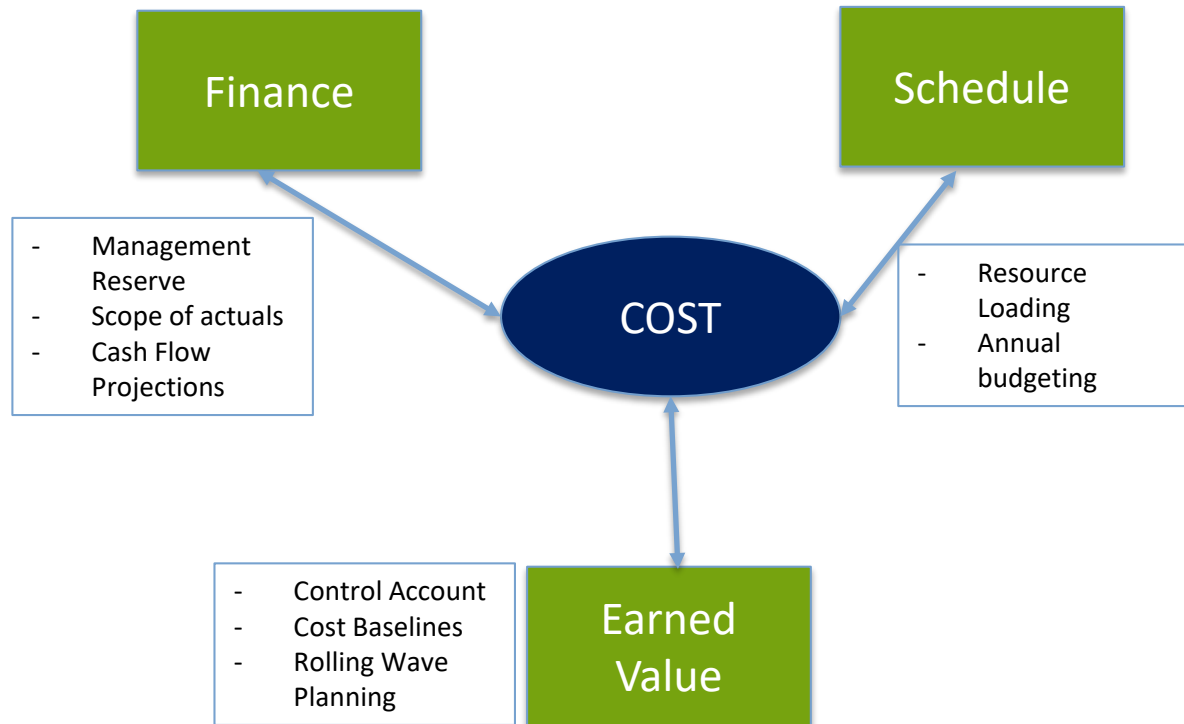
The Cost Estimator's Role

- Trusted advisor to program manager
 - Institutional Knowledge
 - Understands scope
 - Worked across all functional areas
 - Management Reserve Usage
 - Are changes in or out of scope?
- Earned Value
 - Set up cost baseline
 - Work with Control Account Manager (CAM) to understand their budgets
- Working with Budget and Financial Execution
 - Formulate budget. Justify funding requests.
 - Develop cash flow projections
 - Budget/Financial team can inform future segments/estimates
 - Burn rates
 - Cash Flow
 - Relationship to Spend Plan
- Update Cost Estimate
 - Record actual data
 - Identify variances, lessons learned

Value-Added Activities During Execution

- Help form an highly integrated program control team
 - Estimators work across all areas of PC before and during execution
- Analysis and Access to Data
- Establishing a Monthly Cycle/Business Rhythm
 - Data gathering
 - Analysis, reporting
 - Revisions

Cost in Program Control



Forming a Highly Integrated Program Control Team

- Leveraging cost estimators can improve responsiveness to Program Managers
 - Communication with all areas of Program Control (Schedule, EVM, Financial Execution)
 - Incorporate new information and changes into future program planning
 - Work with Budget/Finance to monitor scope
 - Are Procurement Requests in scope?
 - Quick responses to queries and what-ifs
 - Funding requests: in/out of budget? Control accounts impacted?

Analysis and Access to Data

- EVM Reports
 - Revise spend plans based on estimate-to-complete
 - Using SPI and CPI to inform future segments
- Accounting/Invoice Data
 - Track actuals to scope/out of scope
- Obligations and Expenditures
 - Cash flow projections
 - Carryover analysis

Establish Monthly Cycle

- Cost estimators can help establish monthly rhythm of data gathering, analysis, reporting
 - Monthly EVM/CPR reports
 - Spend plan updates
 - Affordability analysis
 - Obligation plan
 - Risk matrix (tracking status of watch items, cost impacts)
 - Analysis of functional area budgets (Control Accounts)
 - Resource Matrix
 - Tracking personnel across functional areas

Conclusion

- Cost Estimators' value need not stop at estimation activities
- Working across functional areas means cost estimators can offer value across all parts of the Program Control function
- Cost can help foster a highly integrated PC team and establish a monthly cycle of data collection and analysis
 - Can provided value to program manager
 - Can facilitate improved data and methodologies for future segments