



Cost Estimating and Contract Pricing

What is a cost estimating system?

A cost estimating system is the contractor's policies, procedures, and practices for generating estimates of costs and other data included in proposals in the expectation of receiving contract awards.

From the perspective of a U.S. government auditor, what is an acceptable cost estimating system?

An acceptable cost estimating system is one that is established, maintained, reliable, and consistently applied; and produces verifiable, supportable, and documented cost estimates.

According to the government, generally when are contractors required to comply with Cost Accounting Standards and cost estimating requirements?

Cost estimating system requirements and Cost Accounting Standards (CAS) generally apply to contractors that, in the preceding fiscal year, received prime contracts or subcontracts totaling \$50 million or more for which cost or pricing data were required.

What are the basic elements of an effective cost estimating system?

See **Table 1**.

This is the third article in a three-part series titled "Federal Acquisition Hot Topics." Part 1, Earned Value Management, was published in December 2006, and Part 2, Performance-Based Contracting, was published in January 2007.

Each of the articles in this three-part series will provide a very simple and highly practical question and answer approach.

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What are the five primary methods for preparing cost estimates?

The five primary methods for preparing cost estimates include:

1. Analogy/historical,
2. Parametric analysis,
3. Weighted average,
4. Technical consensus, and
5. Engineering estimate.

What is the analogy/historical method for preparing cost estimates?

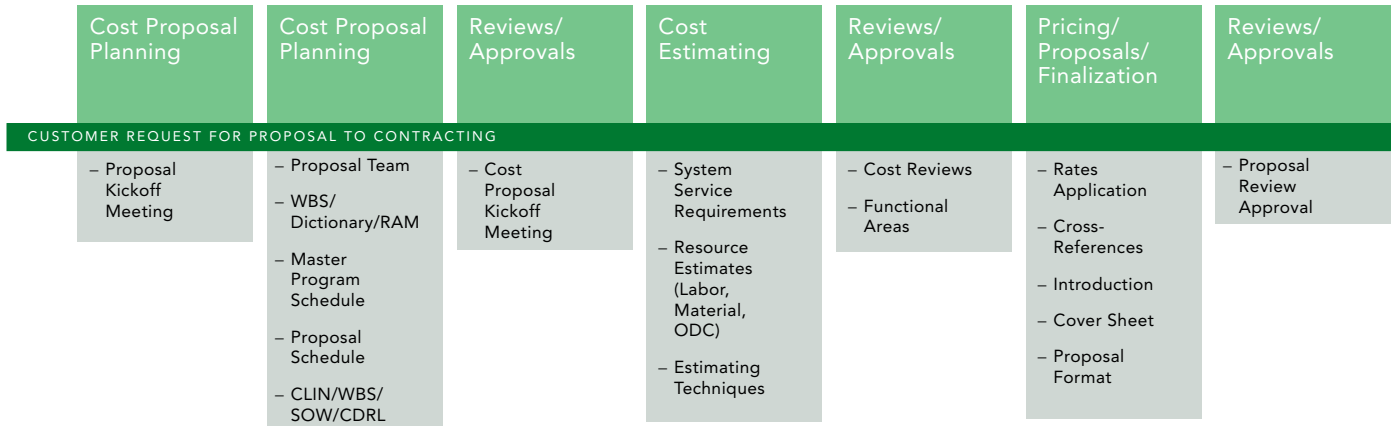
The analogy/historical method is an estimating approach that is based upon historical data, similar to the products or services estimate being prepared. The resource estimator describes how the estimate is similar to previous programs, cites assumptions used to project factual data to estimate costs, and provides copies of charge number accounting cost summaries with each estimate as appropriate or available.

What is the parametric analysis method for preparing cost estimates?

The parametric analysis method is the use of parametric models or cost estimating relationships (CERs) to derive cost data from key cost driver factors, such as product weight, complexity, input/output, software code types, historical data, etc. The resource estimator cites the model and factors used and any assumptions, and provides copies of the model output with each estimate.

What is the weighted average method for preparing cost estimates?

The weighted average method uses the evaluation of three or more similar products and/or services to derive a weighted average in support of estimated costs. The resource estimator cites historical resource expenditures on at least three programs and produces a weighted average calculation, including weighting criteria and rationale as to why and how the programs are similar to the current product or service.



Basic Elements of the Cost Estimating System—Table 1.

What is the technical consensus method for preparing cost estimates?

The technical consensus method requires consensus for estimated resources using experienced, qualified personnel to prepare resource estimates and considerations or assumptions. The resource estimator cites specific personnel involved, their qualifications, estimating assumptions, data, and the median response to support each estimate. Technical consensus is used when no structured resource estimating model can be applied.

What is the engineering estimate method for preparing cost estimates?

The engineering estimate method is a bottoms-up step-by-step description for task requirements and estimated resources for labor, material, and other direct costs, with descriptive rationale as to why resources are required and the considerations used by the engineer to develop the estimate.

What are the key elements of a cost estimate?

The key elements of a cost estimate include:

- Labor cost,
- Materials cost,
- Other direct costs (ODC),
- Subcontractors cost,
- Travel and lodging expenses, and
- Overhead/indirect costs.

What are the various pricing arrangements or contract types used in the public and/or private business sectors?

Pricing Arrangements or Contract Types		
Fixed Price	Cost Reimbursement	Time and Materials
<ul style="list-style-type: none"> – Firm-fixed price (FFP) – Fixed-price with economic price adjustment (FP/EPA) – Fixed-price incentive (FPI) 	<ul style="list-style-type: none"> – Cost reimbursement (CR) – Cost-plus-fixed fee (CPFF) – Cost-plus-incentive fee (CPIF) – Cost-plus-award fee (CPAF) 	<ul style="list-style-type: none"> – Time and materials (T&M) – Unit price (UP) – Labor hours (LH)

Table 2.

What are the essential elements, advantages, disadvantages, and suitability of firm-fixed-price (FFP) contracts?

Type	Advantages	Disadvantages	Suitability
Firm-Fixed Price (FFP)	<p>Reasonably definite design or performance specifications available</p> <p>Fair and reasonable price can be established at outset</p> <p>Conditions for use include the following:</p> <ul style="list-style-type: none"> – Adequate competition – Prior purchase experience of the same or similar supplies or services under competitive conditions – Realistic estimates of proposed cost – Possible uncertainties in performance can be identified and priced – Sellers willing to accept contract at a level that causes them to take all financial risks 	<p>Price not subject to adjustment regardless of seller performance costs</p> <p>Places 100% of financial risk on seller</p> <p>Places least amount of administrative burden on contract manager</p> <p>Preferred over all other contract types</p> <p>Used with advertised or negotiated procurements</p>	<p>Commercial products and commercial services for which reasonable prices can be established</p>

Fixed-Price Contracts (Greater Risk on Seller)—Table 3.

What are the essential elements, advantages, disadvantages, and suitability of cost-plus-award-fee (CPAF) contracts?

Type	Advantages	Disadvantages	Suitability
Cost-Plus-Award Fee (CPAF)	<p>Provides for subjective evaluation of seller performance. Seller is evaluated at stated time(s) during performance period</p> <p>Contract must contain clear and unambiguous evaluation criteria to determine award fee</p> <p>Award fee is earned for excellence in performance, quality, timeliness, ingenuity, and cost-effectiveness and can be earned in whole or in part</p> <p>Two separate fee pools can be established in contract: base fee and award fee</p> <p>Award fee earned by seller is determined by the buyer and is often based on recommendations of an award fee evaluation board</p>	<p>Buyer's determination of amount of award fee earned by the seller is not subject to disputes clause</p> <p>CPAF cannot be used to avoid either CPIF or CPFF if either is feasible</p> <p>Should not be used if the amount of money, period of performance, or expected benefits are insufficient to warrant additional administrative efforts</p> <p>Very costly to administer. Seller must have an adequate accounting system</p> <p>Used only with negotiated contracts</p>	<p>Level-of-effort services that can only be subjectively measured, and contracts for which work would have been accomplished under another contract type if performance objectives could have been expressed as definite milestones, targets, and goals that could have been measured</p>

Fixed-Price Contracts (Greater Risk on Seller)—Table 4.

What are the five key steps to conduct price analysis?

1. Select prices for comparison:
 - Competitive proposal prices,
 - Catalog prices,
 - Historical prices,
 - Price estimates based on parametric analysis, or
 - Independent company estimates.
2. Identify factors that affect comparability;
3. Determine the effect of identified factors;
4. Adjust prices selected for comparison; and
5. Compare adjusted prices. **CM**

About the Author

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