HAWAII STATE PROCUREMENT OFFICE
COST ANALYSIS CLASS
January 2020

A majority of this manual is taken from the *Contract Pricing Reference Guide, Volume 2 and 3* from the Defense Acquisition University. The Full version can be found at:
https://acc.dau.mil/CommunityBrowser.aspx?id=406579 (Note: You might get a notice about the site's certificate. Proceed anyway. This is a Federally managed safe site.)

CPRG Volume 3 - Cost Analysis

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CHAPTER 1: INTRODUCTION TO COST ANALYSIS

1.1 Introduction

This chapter describes contract costs and cost analysis.

1.1.1 Scope of the Training.

This advanced Cost Analysis class gives guidance on what cost analysis is, how it is implemented in procurement, the responsibilities of the contractor (offeror) and the buyer (procurement officer), and the cost elements within cost analysis. The Basic Procurement Pricing Class (SPO-183) is a pre-requisite for this training.

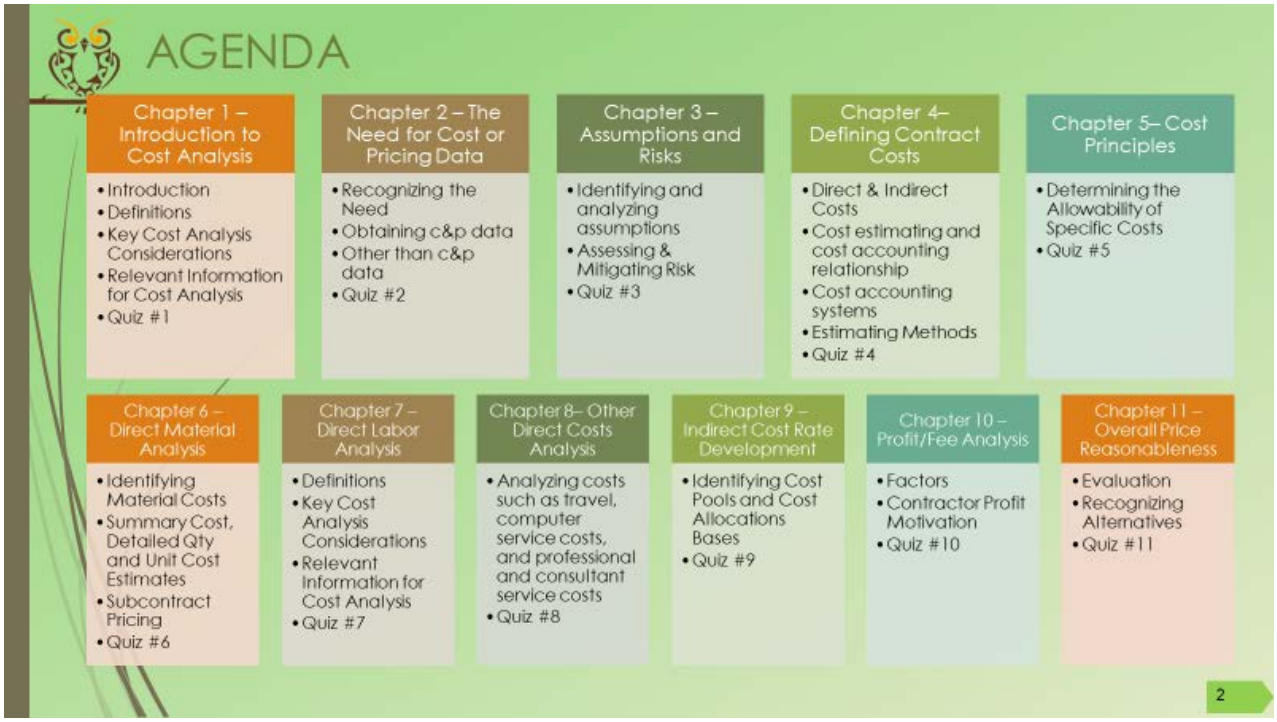
Although the structure of this training is based on Code from HRS103D, Goods, Services and Construction, all these best practices should be used as practicable for HRS103F, Health and Human Services as well as exempt procurements.

This training has been loosely developed from Volume 3 of the Contract Pricing Reference Guide used by the Federal Acquisition Community. It has been designed to take you through the pricing requirements required at each stage of the Procurement Lifecycle.

1.1.2 Word Match!

Note that the words procurement, contracting and acquisition are synonymous for this training, and can be used interchangeably. So are the words bid and offer. Government is synonymous to State, County and Public Agencies.

In addition, I like to call the requesting department or agency the customer. Why? Because from the perspective of the buyer, that is exactly who your requester is – **your customer**!



1.1.3 Agenda.

This Cost analysis class is broken up into 11 Chapters from your manual with a small quiz at the end of each section. The first chapter is the Introduction to cost analysis, and relevant information.

Chapter 2 will cover recognizing the need for cost or pricing data, and obtaining it, identifying defective data and recognizing relevant data for cost analysis.

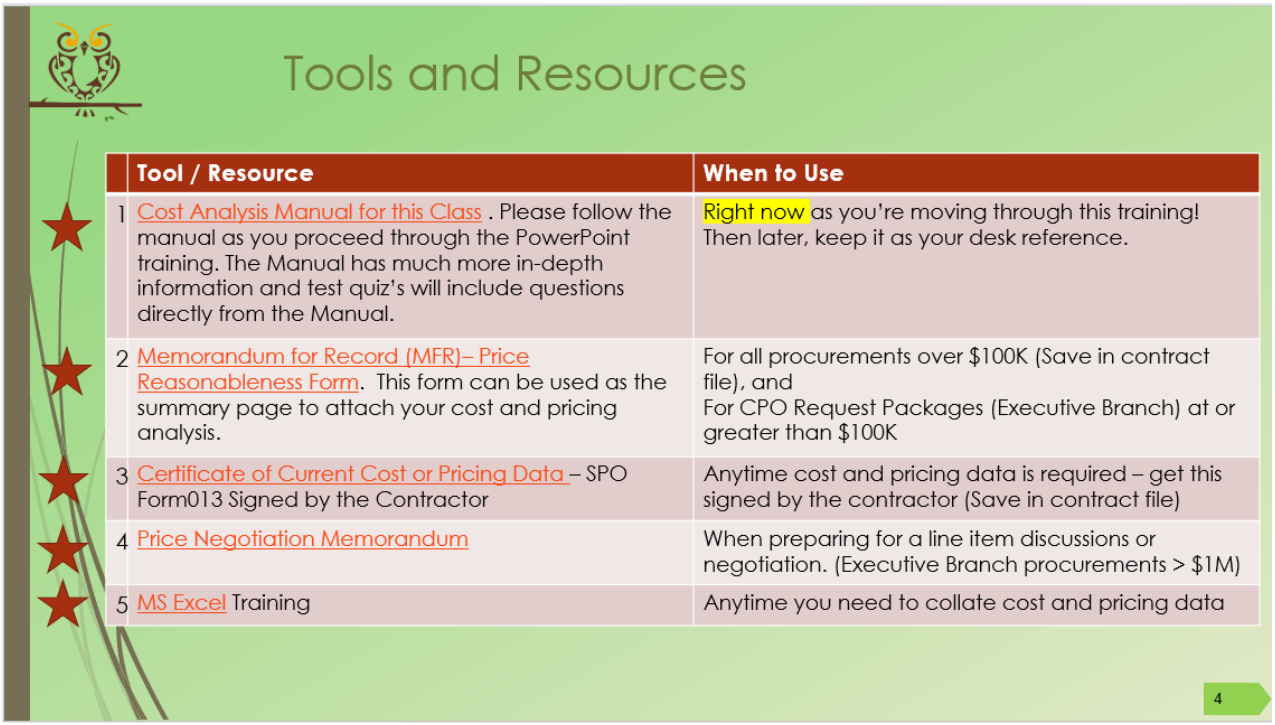
Chapter 3 considers the offeror's planning assumptions and identifying cost risk that is associated with assumptions as well as methods to mitigate risk.

Chapter 4 and 5 introduces cost accounting concepts such as direct and indirect costs and the contractor's cost estimating and cost accounting relationship. It also covers our cost principles which lists out which costs are allowable and more importantly, unallowable in government contracts.

Chapter 6 through Chapter 10 discusses each cost element in detail with examples: Material Costs, Direct Labor, Other Direct Costs, Indirect Cost Rates and a profit/fee analysis.

And Finally, in chapter 11, we shall consider the relationship between cost analysis to the overall price reasonableness.

Thank you for your attention, here we go!



1.1.4 Tools and Resources.

To assist you in this training and beyond, when you conduct your own cost and pricing analysis, we have included some important links.

#1 FIRST! Please make sure you have a copy of this Cost Analysis manual as you are going through this training. There is much more detail in the manual and some of our quiz questions come from there.

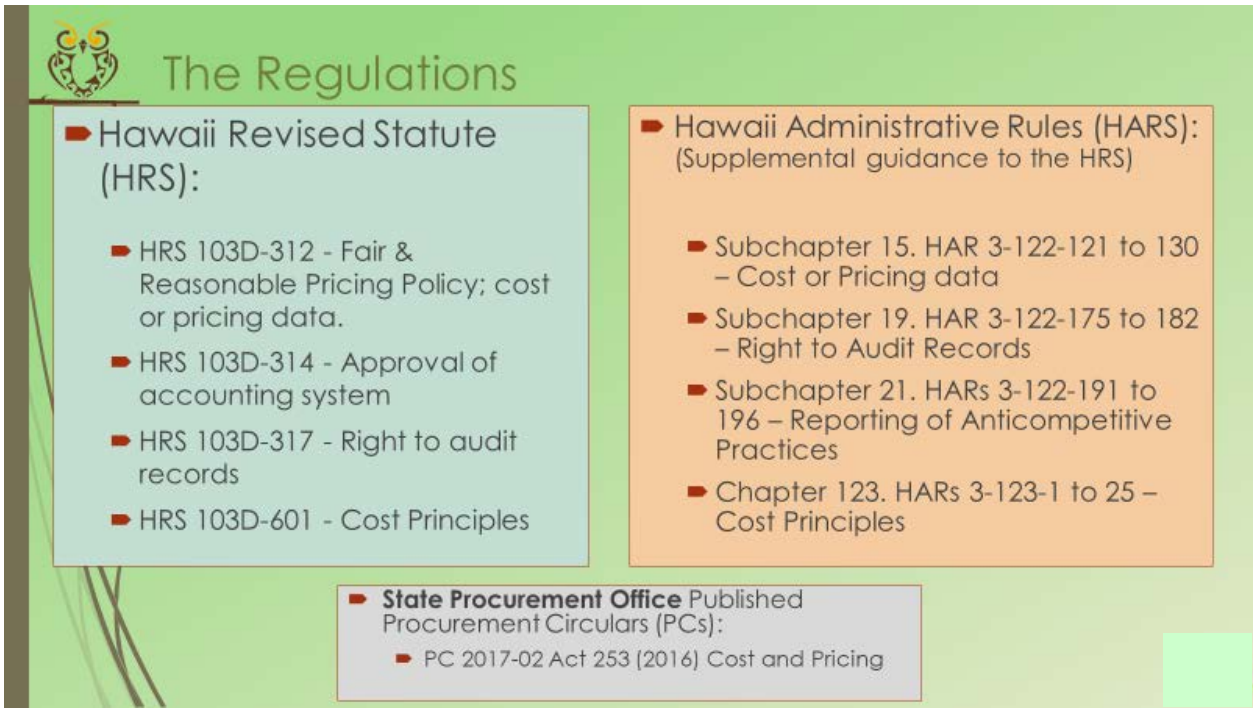
#2 The Price Reasonableness Memorandum for Record (MFR) is a great checklist for your contract file – it's a high-level summary page that you can affix to your cost and pricing analysis – your auditors will love this!

#3 This is the certificate that you will want your offeror to sign and submit back to you for any procurement that requires cost and pricing data per our procurement statute and rules. For example; if you had a sole source procurement for over $100,000, you would include this certificate form in your solicitation for the contractor to submit along with its pricing documents.

#4 This is additional information specific to cost discussions/negotiation. Whether conducting discussions or negotiations, this assists the buyer in having a cost plan for those communications.

#5 This is a link to an Excel spreadsheet training on Youtube.com. It is super helpful to know how to use Excel for your cost and pricing analysis. Excel automatically calculates, it allows for all types of tables to show the data, and helps the buyer conduct true and meaningful analysis.

1.1.5 The Regulations



There are several regulations when it comes to cost and pricing analysis and associated pricing issues that you should become familiar with. Note the references to the Hawaii Revised Statutes or HRS, the associated references to the Hawaii Administrative Rules of HAR, and the State Procurement Office published procurement circulars.

We have always had a requirement to conduct cost and pricing analysis on procurements, however, recently per Act #253 of the 2016 Legislative Session, the Statute now includes language that Procurement Officers make sure our procurements are fair and reasonably priced.

In addition, we need to write down that analysis in an internal memorandum for record for the contract file.

There are a couple of good reasons why this is important.

First, monies spent on government procurements come from the tax we pay, so it is our fiduciary responsibility to ensure we are getting the best fair and reasonable price we can within the market.

Second, the State has lost court cases in the past because even though we may have used the basic calculations to determine lowest bidder, we had not conducted analysis to show the price was fair and reasonable.

Third, a lot of times, we are conducting this analysis, but we just aren't writing it down.

Remember, cost and pricing data can be requested for any procurement over $100,000 if the Procurement Officer needs to validate the price for the contract. It is important to note that this training will go over cost

and pricing specific requirements as well as the basic constructs for cost analysis which can be conducted with or without the need for formal cost and pricing data.

Statute

The Procurement Code talks to the requirement for price and cost certification and analysis. The Hawaii Revised Statute, HRS 103D-312 was recently amended[1] and states:

103D-312 Fair and reasonable pricing policy; cost or pricing data.

(a) A procurement officer shall purchase goods, services, and construction from responsible sources at fair and reasonable prices. A procurement officer shall make a written determination whether a price is fair and reasonable for, each contracting action, including change orders and contract modifications that adjust prices: In establishing whether a price is fair and reasonable, the procurement officer shall obtain:
   (1) Certified cost or pricing data for every contract to which subsection (c) applies; and
   (2) Other data as necessary to perform a cost or price analysis of the data and determine a fair and reasonable price, regardless of whether subsection (c) applies to the contract.

(b) The policy board may adopt rules, pursuant to chapter 91, to establish an order of preference in the type of data required under subsection (a)(2).

(c) A contractor, except as provided in subsection (e), shall submit cost or pricing data and shall certify that, to the best of the contractor's knowledge and belief, the cost or pricing data submitted is accurate, complete, and current as of a mutually determined specified date before the date of:
   (1) The pricing of any contract awarded by competitive sealed proposals or pursuant to the sole source procurement authority, where the total contract amount is expected to exceed an amount established by rules adopted by the policy board; or
   (2) The pricing of any change order or contract modification that is expected to exceed an amount established by rules adopted by the policy board. The requirement of this paragraph shall apply regardless of whether the original contract award did not require certified cost and pricing data.

(d) Any contract, change order, or contract modification under which a certificate is required shall contain a provision that the price to the State, including profit fee, shall be adjusted to exclude any significant sums by which the State finds that the price was increased because the contractor furnished cost or pricing data that was inaccurate, incomplete, or not current as of the date agreed upon between the parties.

(e) The requirements of this section, except for the requirements of paragraph (c) (2), shall not apply to original contract awards:
   (1) Where the original contract price is based on adequate price competition;
   (2) Where the original contract price is based on established catalog prices or market prices;
   (3) Where the original contract prices are set by law or rule; or

[1] Legislative Session 2016, Act 253

(4) Where it is determined in writing in accordance with rules adopted by the policy board that the requirements of this section may be waived, and the reasons for the waiver are stated in writing; - provided that the requirements for price and costinq data required under subsection (a) (2) shall not be waived without the approval of the chief procurement officer; provided further that the chief procurement officer shall not delegate this authority."

Rules

Hawaii Administrative Rules (HARS) Subchapter 15, 3-122-121 through 130 supplements the Statute with additional cost and pricing guidance. Here is an excerpt from the Rules:

§3-122-123 Requirement for cost or pricing data. The procurement officer shall require cost or pricing data or both in support of the following, and may require for professional services pursuant to subchapter 7:

(1) Any contract, resulting from competitive sealed proposals or sole source procurement, expected to exceed $100,000;

(2) Any price adjustment to a contract involving aggregate increases and decreases in costs plus applicable profits expected to exceed $100,000, including a contract resulting from competitive sealed bidding, whether or not cost or pricing data were required in connection with the initial pricing of the contract, except when unrelated and separately priced adjustments, not requiring cost or pricing data if considered separately, are consolidated for administrative convenience; or

(3) A written determination by a procurement officer that the circumstances warrant requiring submission of cost or pricing data provided, however, when less than complete cost analysis, for example; analysis of only specific factors will provide a reasonable pricing result on awards under $100,000 without the submission of complete cost or pricing data, the procurement officer shall request only that data considered adequate to support the limited extent of the cost analysis needed and need not require certification.

§3-122-124 Exceptions to the requirement for cost or pricing data.

(a) Cost or pricing data need not be submitted or certified where the contract price is based on:

(1) Adequate price competition which means at least two responsible offerers independently compete for a contract to be awarded to the offerer submitting the lowest evaluated price.

(2) Established catalogue price which means the price included in a catalogue, price list, schedule, or other form that is regularly maintained by a manufacturer or contractor; is either published or otherwise available for inspection by customers; and states the price at which sales are currently or were last made to a significant number of any category of buyers or buyers constituting the general (non-government) buying public for the goods or services involved.

(3) Established market price which means a current price, established in the usual and ordinary course of trade between buyers and sellers, which can be substantiated from sources independent of the manufacturer or supplier and may be an indication of the reasonableness of price.

(4) Prices set by law or regulation which means the price of a good or service is set by law or rule if some governmental body establishes the price that the contractor may charge the State and other customers.

(b) If, despite the existence of an established catalogue price or market price, and after consultation with the prospective contractors, the procurement officer considers that the price is not reasonable, cost or pricing data may be requested. Where the reasonableness of the price can be assured by a request for cost or pricing data limited to data pertaining to the differences in the item or services being procured and those listed in the catalogue or market, requests should be so limited.

(c) When the chief procurement officer or the head of a purchasing agency determines in writing to waive the applicable requirements of section 3-122- 123 (l) or 3-122 123(2) for submission of cost or pricing data in a particular pricing action and the reasons for the waiver are stated in the determination, a copy of the determination shall be kept in the contract file and made available to the public upon request.

(d) If after cost or pricing data were initially requested and received, it is determined that adequate price competition does exist, the data need not be certified.

1.2 Identifying Key Cost Analysis Considerations

Definition of Cost Analysis. Cost analysis is:

- The review and evaluation of the separate cost elements and profit or fee in an offeror's or contractor's proposal (including cost or pricing data or information other than cost or pricing data), and
- The application of judgment to determine how well the proposed costs represent what the cost of the contract should be, assuming reasonable economy and efficiency.

Required Cost Analysis. You must use cost analysis to evaluate the reasonableness of cost elements when cost or pricing data are required.

Optional Cost Analysis. You may also use cost analysis to evaluate information other than cost or pricing data to determine cost reasonableness or cost realism.

Cost Reasonableness. A cost is reasonable if, in its nature and amount, it does not exceed the cost which would be incurred by a prudent person in the conduct of competitive business.

Cost Realism. To be realistic, the costs in an offeror's proposal must be:

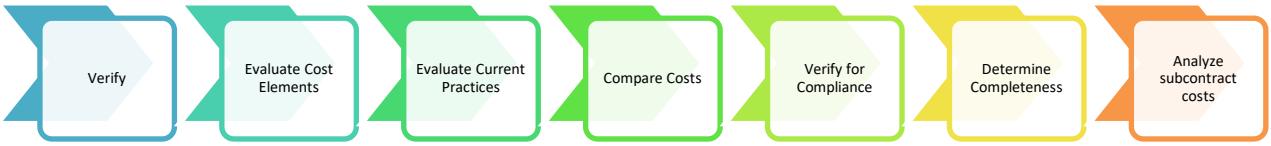
- Realistic for the work to be performed under the contract;
- Reflect a clear understanding of contract requirements; and
- Consistent with the various elements of the offeror's technical proposal.

Cost Analysis Supports Price Analysis. Perform price analysis even when you perform cost analysis. Assuring the reasonableness of individual elements of cost does not always assure overall price reasonableness.

For example, suppose that you wanted to procure a custom-made automobile identical to a Pontiac Trans Am. At your request, your neighborhood mechanic agrees to build you such a car. In building the car, the mechanic gets competitive quotes on all the necessary parts and tooling, pays laborers only the minimum wage, and asks only a very small profit.

How do you think the final price will compare to a car off an assembly line? Probably at least ten times more expensive. Parts alone may be five times more expensive. The entire cost of tooling will be charged to one car. Labor, although cheaper per hour, will likely not be as efficient as assembly-line labor. Is the price reasonable? That decision can only be made using a thorough price analysis.

Cost Analysis Techniques and Procedures. As appropriate, use the following techniques and procedures to perform cost analysis:



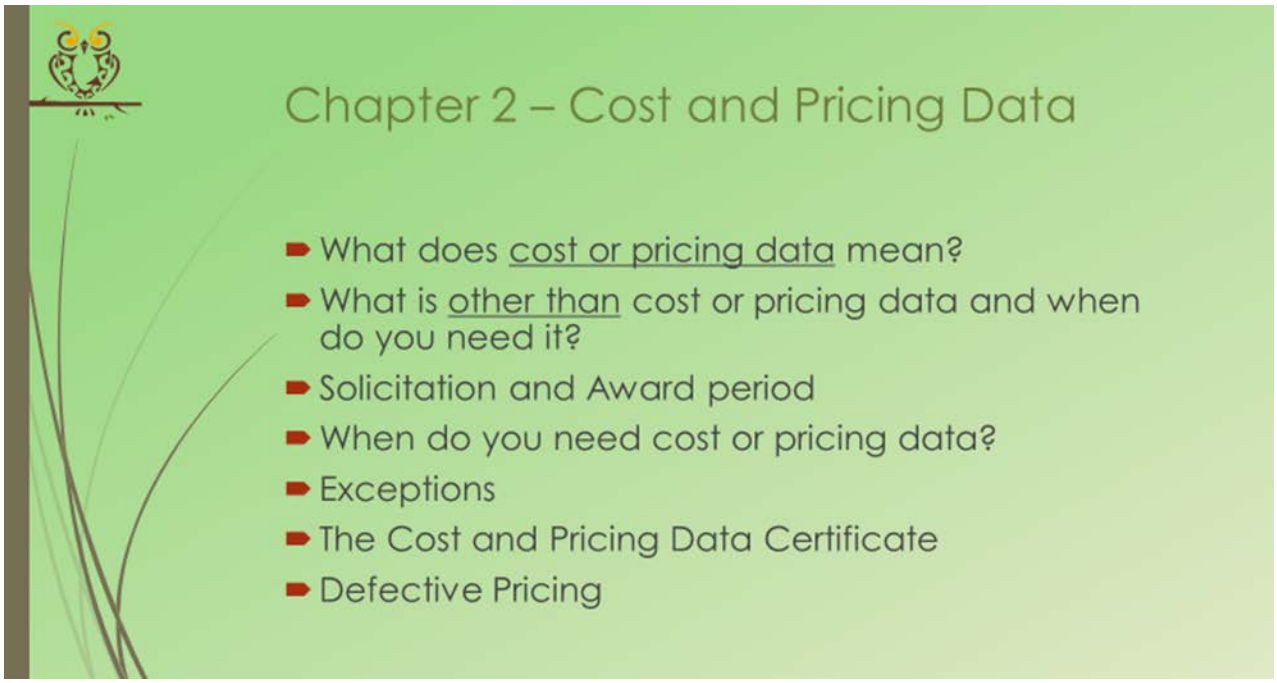
- Verify cost or pricing data or information other than cost or pricing data.
- Evaluate cost elements, including:
    - The necessity for and reasonableness of proposed costs, including allowances for contingencies;
    - Projections of the offeror's cost trends, on the basis of current and historical cost or pricing data or information other than cost or pricing data;
    - Reasonableness of estimates generated by appropriately calibrated and validated parametric models or Cost Estimating Relationships; and
    - The application of audited or negotiated indirect cost rates, labor rates, and other factors.
- Evaluate the effect of the offeror's current practices on future costs.
    - Ensure that the effects of inefficient or uneconomical past practices are not projected into the future.
    - In pricing production of recently developed complex equipment, perform a trend analysis of basic labor and materials even in periods of relative price stability.
- Compare costs proposed by the offeror for individual cost elements with:
    - Actual costs previously incurred by the offeror;
    - Previous cost estimates from the offeror or from other offerors for the same or similar items;
    - Other cost estimates received in response to the Government's request;
    - Independent Government cost estimates by technical personnel; and
    - Forecasts of planned expenditures.
- Verify that the offeror's cost submissions are in accordance with the contract cost principles and procedures in the HRS and HARS regulations, and the Governmental Accounting Standards Board (GASB).
- Determine whether any cost or pricing data necessary to make the contractor's proposal accurate, complete, and current have not been either submitted or identified in writing by the

contractor. If there are such data:

- Attempt to obtain the data and negotiate using the data obtained, or
- Make satisfactory allowance for the incomplete data.

- Analyze the results of any make-or-buy program reviews, in evaluating subcontract costs.

CHAPTER 2: COST AND PRICING DATA



2.1 Chapter Introduction

❖ ***Cost or Pricing Data*.** Cost or pricing data means:

- All facts that, as of the date of price agreement or, if applicable, an earlier date agreed upon between the parties that is as close as practicable to the date of agreement on price, prudent buyers and sellers would reasonably expect to affect price negotiations significantly.
- Require certification as accurate, complete, and current.
- Are factual, not judgmental, and are verifiable.
- Include the data that form the basis for the prospective offeror's judgment about future cost projections. The data do not indicate the accuracy of the prospective contractor's judgment.
- Are more than historical accounting data; they are all the facts that can be reasonably expected to contribute to the soundness of estimates of future costs and to the validity of determinations of costs already incurred.
- Include such factors as:
    - Vendor quotations;
    - Nonrecurring costs;
    - Information on changes in production methods and in production or purchasing volume;
    - Data supporting projections of business prospects and objectives and related operations costs;
    - Unit-cost trends such as those associated with labor efficiency;
    - Make-or-buy decisions;
    - Estimated resources to attain business goals; and

- Information on management decisions that could have a significant bearing on costs.

❖ ***Information <u>Other than</u> Cost or Pricing Data*.** Information other than cost or pricing data:

- Is any type of information required to determine price reasonableness or cost realism that does <u>not</u> require offeror certification as accurate, complete, and current.
- May include pricing, sales, or cost information.
- Includes cost or pricing data for which certification is determined inapplicable after submission.

- *Recognizing The Need For Information Other Than Cost Or Pricing Data*

*Situations That May Require Cost Information Other Than Cost or Pricing D*ata. Only require an offeror to submit cost information other than cost or pricing data when you expect that the offeror will be excepted from submitting certified cost or pricing data, but you need cost information to determine price reasonableness or cost realism. The table below provides several examples of such situations. Government technical and audit assistance may be required to analyze the cost information and answer related questions.

Tailor Information Requirements. Tailor any requirements for cost information other than cost or pricing data so that you only require information essential to your analysis, but not readily available from other sources.

- Identify cost elements that must be considered in evaluating price reasonableness or cost realism.
- Identify the type of information that might be useful in evaluating a particular cost element.
- Identify information readily available from other sources.
- Limit cost information requirements to those facts necessary to determine price reasonableness or cost realism but not available from other sources.

For example: Suppose you are acquiring an estimated $300,000 research study from the only known source. You expect that material and other direct costs will be a small portion of the total price. You are particularly concerned about estimated direct labor hours. The solicitation might require an offeror to submit information on:

- Proposed labor hours and costs by task and labor category.
- Total material costs and total other direct costs without further breakdown of those costs.
- Proposed indirect cost, by category (e.g., overhead and general administrative cost).
- Proposed profit or fee.

Format Requirements

The solicitation/contract must describe the format required for offeror submission of cost information other than cost or pricing data.

- State that the offeror may select an appropriate format unless the procurement officer decides that use of a specific format is essential.
- If the procurement officer decides that a specific format is essential, assure format requirements are clearly described.

Requirement for Access to Records.

The solicitation/contract must describe the requirement for preaward or post award access to the offeror's records.

- Preaward access requirements should normally permit the procurement officer or an authorized representative the right to examine offeror books, records, documents, or other directly pertinent records to verify the reasonableness of proposed costs.
- Post award access is normally not required for cost information other than cost or pricing data.

Requirement for Current Information. Ensure that the information used to support price negotiations is sufficiently current to permit negotiation of a fair and reasonable price. However, you should limit requests for updated offeror information to information that effects the adequacy of the proposal for negotiations.

Never require the offeror to certify that the cost information other than cost or pricing data provided to the Government is accurate, complete, or current. Contracts should not provide for price adjustments because the contractor did not provide accurate, complete, or current cost information.

2.2 Procurement Life-Cycle Consideration

2.2.1 Market Research

Cost analysis does not begin when you receive the proposal. Just like price analysis, it begins with market research prior to proposal receipt. In market research, you collect and analyze relevant information before you actually begin your analysis of a cost proposal.

Recognizing Relevant Information For Cost Analysis.

Your market research for cost analysis should center on collecting and analyzing information on the cost of efficient and effective contract performance.

2.2.1.1 Examining Related Contract Files

Using Historical Contract Information. Review the available files of contracts with the same firm to learn about offeror pricing practices, the quality of pricing information provided by the offeror, and any precedents established in past negotiations.

As with any other historical information, use historical information related to contract costs with care. Always consider differences between the past and the current contracting situations.

Identify Past Problems/Precedents. Information on problems that may have occurred in previous proposals or past contracts and their resolution can give you useful insight into the accuracy of current estimates. As a minimum, consider the following questions:

- Does the offeror have a history of problems in controlling costs?

Did the offeror experience cost overruns attributable to historical problems that do not or should not exist today? Uncritical use of historical cost projections could lead to excessive contract cost estimates.

- Does the offeror have a history of not providing adequate cost estimate support?

Proposal errors can seriously affect your ability to perform an effective cost analysis. If a firm has a track record of problems in a certain area, take care to assure that similar problems do not exist in the current proposal.

- Does the offeror have a history of over/under estimating costs?

Historical proposal tendencies may help you to identify proposed costs that require special scrutiny.

- What were the major cost-related problems and negotiation points in past contract

negotiations?

The price negotiation memorandum (PNM)[2] should identify cost-related problems and major points that came up during fact-finding and negotiation. These same issues may come up in the current proposal. Referring to past PNMs can help you identify key areas of analysis and tell you how they were handled.

- How did the negotiated price compare with the proposed price?

The PNM should explain the differences between the proposed price, the Government objectives, and the price negotiated. These differences may give you an insight into potential weaknesses in the firm's current proposal.

- Were any pricing precedents established during previous negotiations that may affect the current negotiations?

Past negotiations may have included an agreement on how to handle a specific type of cost in specific situations. Such agreements may establish a precedent that you should consider in the current analysis. However, be careful; do not blindly except precedents that do not make sense in the current situation.

Identify Contracting Situation Differences. Identify any differences between the contracting situations of the past and the current contracting situation. These differences may help you identify cost elements requiring special attention during cost analysis. As a minimum, consider the following questions:

- Have there been any changes in production methods?

If the offeror has improved production methods, leading to reductions in costs (e.g., labor, material, or scrap), then those improvements need to be reflected in projected costs.

- Have there been any changes in the offeror's make-or-buy program?

If the offeror has changed component sources, those changes should be considered in cost estimates. Producing previously subcontracted items in-house will normally increase in-house costs and reduce subcontract costs. Give special attention to the effect such changes have on total cost. If such a change increases total cost, offeror make-or-buy decision criteria require further examination.

- Have contract requirements changed?

Changes in Government requirements documents or business terms will likely affect costs. For example, if a tolerance has been relaxed or a specific process or inspection is no longer required, projected costs should change accordingly.

- Have the offeror's accounting practices changed?

If the offeror has changed procedures for classification or accumulation of a particular cost, projected costs may be affected. For example, if a particular type of cost was previously classified as a direct cost, and is now classified as an indirect cost, expect changes in the totals for both cost groupings.

- Have business conditions or general economic conditions changed?

Changes in business or general economic conditions will also affect costs. You must adjust historical costs to consider these changes. The most obvious example is inflation/deflation.

[2] For more information on pre-negotiation memorandums, please refer to Procurement Pricing Class SPO183 Manual.

2.2.1.2 Examining Relevant Audits and Technical Reports

Relevant Audit and Technical Reports. Your office may not have direct experience with the offer, but you may be able to obtain audits or technical reports from other offeror proposals. Audits and technical reports can be excellent sources of cost information. Obtain and analyze reports on other proposals for identical or similar items.

Reports on Other Proposals for Identical or Similar Items. Reports on previous procurements of identical or similar items can provide information on cost elements that were particular problems in the past.
Knowledge of past problems can give useful insight into the cost elements that will require special attention in cost analysis. Reports may also give you insight into the best approaches to use in your current cost analysis. Consider the following questions:

- How do estimating methods compare with past contracts for the same item?

Changes in estimating methodology are usually attempts to improve cost estimates. However, a change may be an attempt to mask a weakness in the offeror's proposal.

- How do estimating methods for similar items compare with the current proposal?

Often, similar products are produced by the same workers using the same equipment. Similarity is usually identified by similarity of processes, technical requirements, or product. Comparisons can reveal significant data on cost reasonableness. Comparisons with costs for similar products, are particularly useful when the product offered has never been produced before.

- Are any costs questioned in previous reports similar to the costs proposed for the current contract?

If you find patterns of questioned costs, closely scrutinize similar cost estimates for the current proposal.

- Should the analysis methods documented in previous reports be applied to the current contract?

These reports may document useful approaches to cost analysis. Different approaches can provide very different perspectives of cost reasonableness.

2.2.1.3 Examining Industry Cost Estimating Guides And Standards

Industry Estimating Guides/Standards. In some industries (e.g., construction), there are cost estimating guides and standards that are generally accepted by the industry. Once you identify the tasks required to complete the contract, these guides and standards provide excellent information on the related cost. For other industries, there are various sources of information that you can use as benchmarks in your cost analysis. For example: R.S. Means Company, Inc. and Gordion's Job Order Contracting (JOC) for construction builds construction cost data, pricing guides, and other information presented in paper-based and electronic formats.

2.2.2 Solicitation Cost Information Requirements.

When cost analysis is necessary to support a decision on price reasonableness or cost realism, the procurement officer may require an offeror to submit cost information at any time prior to the close of negotiations. However, identifying all requirements in the solicitation will permit offerors to gather and document the required information during proposal preparation. If you require the data after proposals are received, the contracting process must be delayed while the offeror gathers and documents the information required.

The solicitation must specify:

- Whether cost or pricing data are required;
- That, when cost or pricing data are required, the offeror may submit a request for exception from

the requirement to submit cost or pricing data;

- Whether information other than cost or pricing data is required, if cost or pricing data are not necessary;
- Necessary preaward or post award access to the offeror's records;
- The format required for submission of cost or pricing data or information other than cost or pricing data.

2.2.3 Price-Related Information Requirements After Receipt of Offers.

Decisions on offeror cost information requirements continue after proposals are received:

- If offerors were required to submit cost or pricing data and:
    - An offeror submitted the data, but the procurement officer later finds that certification is not required, treat the data as information other than cost or pricing data.
    - An offeror initially refuses to provide the required data or the data provided are so deficient as to preclude adequate analysis and evaluation, the procurement officer must again attempt to obtain the data unless the data are no longer required. If the offeror persists in refusing to provide the needed data, the procurement officer must withhold contract award or price adjustment and refer the contract action to higher authority, with details of the attempts made to resolve the matter and a statement on the practicality of obtaining the supplies or services from another source.
- If the Government does not require submission of cost or pricing data and the procurement officer later determines that the data are necessary, require the offeror to submit the required data prior to the close of contract negotiations.
- If the Government does not require submission of cost or pricing data or information other than cost or pricing data, but the procurement officer later determines that information other than cost or pricing data is needed from the offeror to determine price reasonableness, require the offeror to submit the necessary information prior to the close of contract negotiations.

2.3 Recognizing The Need For Cost Or Pricing Data

Requiring Cost or Pricing Data. **Unless an exception applies,** the procurement officer should obtain cost or pricing data before accomplishing any of the following actions when the price is expected to exceed the applicable cost or pricing data threshold ($100,000):

- The award of any negotiated contract.
- The award of a subcontract at any tier, if the contractor and each higher-tier subcontractor have been required to furnish cost or pricing data.
- The modification of any sealed bid or negotiated sealed proposal contract (whether or not cost or pricing data were initially required) or subcontract. When calculating the amount of the contract price adjustment, consider both increases and decreases. (For example, a $200,000 modification resulting from a reduction of $500,000 and an increase of $300,000 is a pricing adjustment exceeding the current cost or pricing data threshold of $650,000.) This requirement does not apply when unrelated and separately priced changes for which cost or pricing data would not otherwise be required are included for administrative convenience in the same contract modification.

Exceptions to Cost or Pricing Data Requirements. **Never** require cost or pricing data when an exception applies.

Exception from Cost or pricing Data requirements if...	Standard for Granting the Exception
1. The procurement officer determines that the agreed-upon price is based on **adequate price competition**.	A price is based on adequate price competition when one of the following situations exists: • Two or more responsible offerors, competing independently, submit priced offers that satisfy the Government's expressed requirement and both of the following requirements are met: o Award will be made to the offeror whose proposal represents the best value where price is a substantial factor in the source selection; and o There is no finding that the price of the otherwise successful offeror is unreasonable. Any finding that the price is unreasonable must be supported by a statement of the facts and approved at a level above the procurement officer. There was a reasonable expectation, based on market research or other assessment, that two or more responsible offerors, competing independently, would submit priced offers in response to the solicitation's expressed requirement, even though only one offer is received from a responsible, responsive offeror and both of the following requirements are met: o Based on the offer received, the procurement officer can reasonably conclude that the offer was submitted with the expectation of competition, e.g., circumstances indicate that: ▪ The offeror believed that at least one other offeror was capable of submitting a meaningful, offer; and ▪ The offeror had no reason to believe that other potential offerors did not intend to submit an offer; and o The determination that the proposed price is based on adequate price competition and is reasonable is approved at a level above the procurement officer. • Price analysis clearly demonstrates that the proposed price is reasonable in comparison with current or recent prices for the same or similar items adjusted to reflect changes in market conditions, economic conditions, quantities, or terms and conditions under contracts that resulted from price competition.

Exception from Cost or pricing Data requirements if...	Standard for Granting the Exception
2. The procurement officer determines that the item price is **set by law or regulation.**	Pronouncements in the form of periodic rulings, reviews, or similar actions of a governmental body, or embodied in the laws, are sufficient to demonstrate a set price.
3. The original contract price is based on established **catalog prices or market prices.**	The price included in a catalogue, price list, schedule, or other form that is regularly maintained by a manufacturer or contractor; is either published or otherwise available for inspection by customers; and states the price at which sales are currently or were last made to a significant number of any category of buyers or buyers constituting the general (non-government) buying public for the goods or services involved. Established market price which means a current price, established in the usual and ordinary course of trade between buyers and sellers, which can be substantiated from sources independent of the manufacturer or supplier and may be an indication of the reasonableness of price.
4. The chief procurement officer (CPO) or head of the purchasing agency (HOPA) **waives the requirement.**	The chief procurement officer or head of the purchasing agency (HOPA) (without power of delegation) waives the requirement in writing. The HOPA may consider waiving the requirement if the price can be determined to be fair and reasonable without submission of cost or pricing data. A copy of the determination shall be kept in the contract file and made available to the public upon request (HARS 122-124(c)).

Other Prohibitions Against Requiring Cost of Pricing Data.

Never require cost or pricing data for:

- Any contract or subcontract action with a price that is equal to or less than the small purchase threshold. When calculating the price adjustment related to a contract modification, consider both increases and decreases, unless unrelated and separately priced changes for which cost or pricing data would not otherwise be required are included for administrative convenience in the same contract modification.
- The exercise of a contract option at the price established at contract award or initial negotiation.

Cost or Pricing Data Requirements Authorized by the Head of the Purchasing Agency.

If none of the exceptions or prohibitions described above apply, the head of the purchasing agency (without power of delegation) may authorize the procurement officer to require cost or pricing data for any contract action at or below the cost or pricing data threshold.

- The head of the purchasing agency must justify the requirement.
- Documentation must include a written finding that cost or pricing data are necessary to determine whether the price is fair and reasonable and the facts supporting that finding.

Before requesting authorization to require cost or pricing data below the cost or pricing data threshold, consider both the costs and benefits of requiring cost or pricing data. Give special consideration to requesting authorization to require cost or pricing data when the offeror, contractor, or subcontractor:

- Has been the subject of recent or recurring and significant findings of defective pricing;
- Currently has significant deficiencies in cost estimating systems; or
- Has recently been indicted for, convicted of, or the subject of an administrative or judicial finding of fraud regarding its cost estimating system or cost accounting practices.

2.4 Obtaining Cost Or Pricing Data

Cost or Pricing Data Format. Require cost or pricing data submission in the format prescribed in the solicitation/contract.

- For a **contract termination settlement** proposal submitted cost or pricing data must be submitted in the format prescribed by the contracting authority.
- For all other contract or subcontract actions the procurement officer may require submission of cost or pricing data in:
    - An alternate format outlined in the solicitation/contract; or
    - A format selected by the offeror.

- Instructions for Submitting Cost/Price Proposals When Cost or Pricing Data Are Required

This document provides instructions for preparing a contract pricing proposal when cost or pricing data are required.

Note 1. There is a clear distinction between submitting cost or pricing data and merely making available books, records, and other documents without identification. The requirement for submission of cost or pricing data is met when all accurate cost or pricing data reasonably available to the offeror have been submitted, either actually or by specific identification, to the procurement officer or an authorized representative. As later information comes into your possession, it should be submitted

promptly to the procurement officer in a manner that clearly shows how the information relates to the offeror's price proposal. The requirement for submission of cost or pricing data continues up to the time of agreement on price, or an earlier date agreed upon between the parties if applicable.

Note 2. By submitting your proposal, you grant the procurement officer or an authorized representative the right to examine records that formed the basis for the pricing proposal. That examination can take place at any time before award. It may include those books, records, documents, and other types of factual information (regardless of form or whether the information is specifically referenced or included in the proposal as the basis for pricing) that will permit an adequate evaluation of the proposed price.

I. General Instructions

A. You must provide the following information on the first page of your pricing proposal:

(1) Solicitation, contract, and/or modification number;

(2) Name and address of offeror;

(3) Name and telephone number of point of contact;

(4) Name of contract administration office (if available);

(5) Type of contract action (that is, new contract, change order, price revision/redetermination, letter contract, unpriced order, or other);

(6) Proposed cost; profit or fee; and total;

(7) Whether you will require the use of Government property in the performance of the contract, and, if so, what property;

(8) The following statement:

This proposal reflects our estimates and/or actual costs as of this date and conforms with the instructions in HARs 3-122-121 through 130. By submitting this proposal, we grant the procurement officer and authorized representative(s) the right to examine, at any time before award, those records, which include books, documents, accounting procedures and practices, and other data, regardless of type and form or whether such supporting information is specifically referenced or included in the proposal as the basis for pricing, that will permit an adequate evaluation of the proposed price.

(9) Date of submission; and

(10) Name, title and signature of authorized representative.

B. In submitting your proposal, you must include an index, appropriately referenced, of all the cost or pricing data and information accompanying or identified in the proposal. In addition, you must annotate any future additions and/or revisions, up to the date of agreement on price, or an earlier date agreed upon by the parties, on a supplemental index.

C. As part of the specific information required, you must submit, with your proposal, cost or pricing data are verifiable and factual. You must clearly identify on your cover sheet that cost or pricing data are included as part of the proposal. In addition, you must submit with your proposal any information reasonably required to explain your estimating process, including--

(a) The judgmental factors applied, and the mathematical or other methods used in the estimate, including those used in projecting from known data; and

(b) The nature and amount of any contingencies included in the proposed price.

D. You must show the relationship between contract line item prices and the total contract price. You must attach cost-element breakdowns for each proposed line item, using the appropriate format prescribed in the "Formats for Submission of Line Item Summaries" section of this table. You must furnish supporting breakdowns for each cost element, consistent with your cost accounting system.

E. When more than one contract line item is proposed, you must also provide summary total amounts covering all line items for each element of cost.

F. Whenever you have incurred costs for work performed before submission of a proposal, you must identify those costs in your cost/price proposal.

G. If you have reached an agreement with Government representatives on use of forward pricing rates/factors, identify the agreement, include a copy, and describe its nature.

H. As soon as practicable after final agreement on price or an earlier date agreed to by the parties, but before the award resulting from the proposal, you must, under the conditions stated in HARs 3-122-121 through 130, submit a Certificate of Current Cost or Pricing Data.

II. Cost Elements

Depending on your system, you must provide breakdowns for the following basic cost elements, as applicable:

A. ***Materials and services.*** Provide a consolidated priced summary of individual material quantities included in the various tasks, orders, or contract line items being proposed and the basis for pricing (vendor quotes, invoice prices, etc.). Include raw materials, parts, components, assemblies, and services to be produced or performed by others. For all items proposed, identify the item and show the source, quantity, and price. Conduct price analyses of all subcontractor proposals. Conduct cost analyses for all subcontracts when cost or pricing data are submitted by the subcontractor. Include these analyses as part of your own cost or pricing data submissions for subcontracts expected to exceed the appropriate threshold in HARs 3-122-121 through 130. Submit the subcontractor cost or pricing data as part of your own cost or pricing data. These requirements also apply to all subcontractors if required to submit cost or pricing data.

(1) ***Adequate Price Competition.*** Provide data showing the degree of competition and the basis for establishing the source and reasonableness of price for those acquisitions (such as subcontracts, purchase orders, material order, etc.) exceeding, or expected to exceed, the appropriate threshold set forth at HAR 3-122-123 priced on the basis of adequate price competition. For interorganizational transfers priced at other than the cost of comparable competitive commercial work of the division, subsidiary, or affiliate of the contractor, explain the pricing method.

(2) ***All Other.*** Obtain cost or pricing data from prospective sources for those acquisitions (such as subcontracts, purchase orders, material order, etc.) exceeding the threshold set forth in HAR 3-122-123 and not otherwise exempt, in accordance with HAR 3-122-124 (i.e., adequate price competition, commercial items, prices set by law or regulation or waiver). Also provide data showing the basis for establishing source and reasonableness of price. In addition, provide a summary of your cost analysis and a copy of cost or pricing data submitted by the prospective source in support of each subcontract. The procurement officer may require you to submit cost or pricing data in support of proposals in lower amounts. Subcontractor cost or pricing data must be accurate, complete and current as of the date of final price agreement, or an earlier date agreed upon by the parties, given on the prime contractor's Certificate of Current Cost or Pricing Data. The prime contractor is responsible for updating a prospective subcontractor's data. For standard commercial items fabricated by the offeror that are generally stocked in inventory, provide a separate cost breakdown, if priced based on cost. For interorganizational transfers priced at cost, provide a separate breakdown of cost elements. Analyze the cost or pricing data and submit the results of your analysis of the prospective source's proposal. When submission of a prospective source's cost or pricing data is required as described in this paragraph, it must be included along with your own cost or pricing data submission, as part of your own cost or pricing data. You must also submit any other cost or pricing data obtained from a subcontractor, either actually or by specific identification, along with the results of any analysis performed on that data.

B. ***Direct Labor.*** Provide a time-phased (e.g., monthly, quarterly, etc.) breakdown of labor hours, rates, and cost by appropriate category, and furnish bases for estimates.

C. ***Indirect Costs.*** Indicate how you have computed and applied your indirect costs, including cost breakdowns. Show trends and budgetary data to provide a basis for evaluating the reasonableness of proposed rates. Indicate the rates used and provide an appropriate

explanation.

D. ***Other Costs.*** List all other costs not otherwise included in the categories described above (e.g., special tooling, travel, computer and consultant services, preservation, packaging and packing, spoilage and rework, and Federal excise tax on finished articles) and provide bases for pricing.

III. Formats for Submission of Line Item Summaries

A. New Contracts.

Cost Elements (1)	Proposed Contract Estimate-Total Cost (2)	Proposed Contract Estimate-Unit Cost (3)	Reference (4)

Column	Instruction
(1)	Enter appropriate cost elements.
(2)	Enter those necessary and reasonable costs that, in your judgment, will properly be incurred in efficient contract performance. When any of the costs in this column have already been incurred (e.g., under a letter contract), describe them on an attached supporting page. When preproduction or startup costs are significant, or when specifically requested to do so by the procurement officer, provide a full identification and explanation of them.
(3)	Optional, unless required by the procurement officer.
(4)	Identify the attachment in which the information supporting the specific cost element may be found.

(Attach separate pages as necessary.)

B. Change Orders, Modifications, and Claims.

Cost Elements (1)	Estimate Cost of All Work Deleted (2)	Cost of Deleted Work Already Performed (3)	Net Cost to Be Deleted (4)	Cost of Work Added (5)	Net Cost of Change (6)	Reference (7)

Column	Instructions
(1)	Enter appropriate cost elements.
(2)	Include the current estimates of what the cost would have been to complete the deleted work not yet performed (not the original proposal estimates), and the cost of deleted work already performed.

(3) Include the incurred cost of deleted work already performed, using actuals incurred if possible, or, if actuals are not available, estimates from your accounting records. Attach a detailed inventory of work, materials, parts, components, and hardware already purchased, manufactured, or performed and deleted by the change, indicating the cost and proposed disposition of each line item. Also, if you desire to retain these items or any portion of them, indicate the amount offered for them.

(4) Enter the net cost to be deleted which is the estimated cost of all deleted work less the cost of deleted work already performed. Column (2) minus Column (3) equals Column (4).

(5) Enter your estimate for cost of work added by the change. When nonrecurring costs are significant, or when specifically requested to do so by the procurement officer, provide a full identification and explanation of them. When any of the costs in this column have already been incurred, describe them on an attached supporting schedule.

(6) Enter the net cost of change which is the cost of work added, less the net cost to be deleted. When this result is negative, place the amount in parentheses. Column (4) less Column (5) = Column (6).

(7) Identify the attachment in which the information supporting the specific cost element may be found.

C. Price Revision/Redetermination.

Cutoff Date (1)	Number of Units Completed (2)	Number of Unites to be Completed (3)	Contract Amount (4)	Redetermination Proposal Amount (5)	Difference (6)

Cost Elements (7)	Incurred Cost -- Preproduction (8)	Incurred Cost-Completed Units (9)	Incurred Cost-Work in Process (10)	Total Incurred Cost (11)	Estimated Cost to Complete (12)	Estimated Total Cost (13)	Reference (14)

Column	Instruction
(1)	Enter the cut off date required by the contract, if applicable.
(2)	Enter the number of units completed during the period for which experienced costs of production are being submitted.
(3)	Enter the number of units remaining to be completed under the contract.
(4)	Enter the cumulative contract amount.

(5)	Enter your redetermination proposal amount.
(6)	Enter the difference between the contract amount and the redetermination proposal amount. When this result is negative, place the amount in parentheses. Column (4) minus Column (5) equals Column (6).
(7)	Enter appropriate cost elements. When residual inventory exists, the final costs established under fixed-price-incentive and fixed-price-redeterminable arrangements should be net of the fair market value of such inventory. In support of subcontract costs, submit a listing of all subcontracts subject to repricing action, annotated as to their status.
(8)	Enter all costs incurred under the contract before starting production and other nonrecurring costs (usually referred to as startup costs) from your books and records as of the cutoff date. These include such costs as preproduction engineering, special plant rearrangement, training program, and any identifiable nonrecurring costs such as initial rework, spoilage, pilot runs, etc. In the event the amounts are not segregated in or otherwise available from your records, enter in this column your best estimates. Explain the basis for each estimate and how the costs are charged on offeror's accounting records (e.g., included in production costs as direct engineering labor, charged to manufacturing overhead). Also show how the costs would be allocated to the units at their various stages of contract completion.
(9)	Enter in Column (9) the production costs from your books and records (exclusive of preproduction costs reported in Column (8)) of the units completed as of the cutoff date.
(10)	Enter in Column (10) the costs of work in process as determined from your records or inventories at the cutoff date. When the amounts for work in process are not available in your records but reliable estimates for them can be made, enter the estimated amounts in Column (10) and enter in Column (9) the differences between the total incurred costs (exclusive of preproduction costs) as of the cutoff date and these estimates. Explain the basis for the estimates, including identification of any provision for experienced or anticipated allowances, such as shrinkage, rework, design changes, etc. Furnish experienced unit or lot costs (or labor hours) from inception of contract to the cutoff date, improvement curves, and any other available production cost history pertaining to the item(s) to which yours proposal relates.
(11)	Enter total incurred costs (Total of Columns (8), (9), and (10)).
(12)	Enter those necessary and reasonable costs that in your judgment will properly be incurred in completing the remaining work to be performed under the contract with respect to the item(s) to which your proposal relates.
(13)	Enter total estimated cost (Total of Columns (11) and (12)).
(14)	Identify the attachment in which the information supporting the specific cost element may be found.

(Attach separate pages as necessary.)

Local Data Requirements.
Many contracting activities establish specific format and data requirements tailored to the products typically acquired by the activity. In addition to HRS and local requirements, the procurement officer may establish format and data requirements for a specific contract.

Be careful. You must obtain the data required for cost analysis, but collection, formatting, manipulation, and analysis of unnecessary data can unreasonably increase contract costs. Offerors may refuse to submit data that they feel are not what "prudent buyers and sellers would reasonably expect to affect price negotiations significantly." Litigation may be required to obtain such data and the results of such litigation are not guaranteed.

Paper or Electronic Data Submission. Traditionally procurement officers have required offerors to submit cost or pricing data as printed documents. Most firms prepare these documents using company computers and the resulting printouts may be several inches or even several feet thick.

When the procurement officer gets the paper proposal, the data usually must be entered into a Government computer for analysis. Data entry may require hours, days, or even weeks. This is an unnecessary waste of Government manpower and computer resources, because the offeror has the data in electronic files.

Many activities are eliminating this wasted effort by requiring electronic data submission. Data submitted electronically are ready for immediate analysis and the cost of data entry is eliminated.

You may require an offeror to submit data on an external memory drive or you may require electronic transmission (computer to computer) by Electronic Data Interchange (EDI). Whatever method you choose, make sure that the requirement does not place an unreasonable hardship on the offeror.

2.5 Assuring Proper Cost Or Pricing Data Certification

This section will present information on the cost pricing data certification requirements and the consequences of certifying defective data.

- 2.5.1 - Obtaining A Properly Executed Certificate
- 2.5.2 - Identifying The Consequences Of Certifying Defective Data

2.5.1 Obtaining A Properly Executed Certificate

Situations Requiring a Certificate. Whenever you obtain cost or pricing data, you must require a Certificate of Current Cost or Pricing Data unless the procurement officer finds after data submission that the proposal qualifies for an exception to the submission requirement. Never require a Certificate of Current Cost or Pricing Data when a proposal qualifies for an exception.

If the procurement officer determines after data submission that a proposal should be excepted from the cost or pricing data requirement, treat the data received as information other than cost or pricing data.

SPO Form 13 is a template used for Certification of Cost or Pricing Data. (Found at link: http://spo.hawaii.gov/wp-content/uploads/2013/12/spo-013.pdf)

STATE OF HAWAII
CERTIFICATE OF CURRENT COST OR PRICING DATA

This is to certify that, to the best of my knowledge and belief, cost or pricing data as defined in section 3-122-122 and submitted pursuant to section 3-122-125; either actually or by specific identification in writing to the procurement officer in support of _____*, are accurate, complete, and current as of _____**".
(month, date, year)

This certification includes the cost or pricing data supporting any advance agreement(s) between the offeror and the (State) which are part of the proposal. Please type or print:

Vendor / Firm:	Date of Execution: ***
Name:	Title

_____
(Signature)

_____
(Print Name and Title)

_____
(Date)

(End of Certificate)

* Describe the proposal, quotation, request for price adjustment or other submission involved, giving appropriate identifying number (e.g. RFP Number).

** The effective date shall be a mutually determined date prior to but as close to the date when price negotiations were concluded and the contract price was agreed to as possible. The responsibility of the offeror or contractor is not limited by the personal knowledge of the offeror's or contractor's negotiator if the offeror or contractor had information reasonably available at the time of the agreement, showing that the negotiated price is not based on accurate, complete, and current data.

*** This date should be as soon after the date when the price negotiations were concluded and the contract price was agreed to as practical.

SPO Form-13 (Rev. 7/1/02)

Certification Timing. Require the offeror to submit the Certificate of Current Cost or Pricing Data:

- On or after the "as of" date on the Certificate. The "as of" date may either be:
  - The date when price negotiations were concluded and price agreement was reached, or (if applicable).
  - Another date agreed upon between the parties that is as close as practicable to the date of agreement on price.
  - The procurement officer and the offeror are encouraged to reach prior agreement on criteria for establishing closing or cutoff dates when appropriate in order to minimize delays associated with proposal updates.
  - The offeror should include closing or cutoff dates as part of the data submitted with the proposal and, before agreement on price, data should be updated to the latest closing or cutoff dates for which data are available (e.g., the most recent end-of-month report).

- Prior to executing the contract award or bilateral modification.

Documenting Data Submitted or Identified by the Offeror. When an offeror is required to submit cost or pricing data, consider every piece of information submitted or identified by the offeror as potential cost or pricing data. Assure that the existence and location of the data are clearly documented.

The offeror shall submit an appropriately referenced index of all cost or pricing data accompanying or identified in its proposal. The offeror must annotate any additions or revisions, up to the date of price agreement, or earlier date agreed upon by the parties.

Assure that the index is an accurate record of the data provided. Accepting the index without question indicates agreement that the Government has received all the data identified.

Data and Judgment. What is the offeror certifying with the Certificate of Current Cost or Pricing Data? The offeror is certifying that the cost or pricing data submitted are accurate, complete, and current.

Remember that cost or pricing data are facts not judgment. The Certificate does not certify the accuracy of the offeror's judgment in making the projections or estimates (educated guesses) of future costs using these data. It applies only to the data upon which the judgment and estimate were based.

For example: The offeror estimates labor hours based on a recent contract for an identical item. Contract accounting records confirm that the contract required $10,000 of material per unit. Government indexes confirm that there has been a five percent price increase for similar material since the last contract. The offeror estimates that the new contract will require $10,500 of material per unit ($10,000 plus 5% for inflation). The material cost for the last contract is a fact. The general price increase for similar material is a fact. Using that increase to adjust material prices is judgment. This judgment may or may not be reasonable (e.g., actual prices for the material specifically required for this contract may have decreased). Either way, the judgment is not subject to certification or defective pricing remedies. Only the facts are subject to certification as accurate, complete, and current.

Complete Knowledge. In the Certificate of Current Cost or Pricing Data, the offeror's representative certifies that the data submitted are accurate, complete, and current to the "best of my knowledge and belief" as of the time when negotiations were concluded and price agreement was reached or (if applicable) an earlier date agreed upon between the parties that is as close as practicable to the date of agreement on price.

If something affecting cost changed between the "as of" date and the date of the certification, the offeror is not required to inform the Government.

However, if anyone in the offeror's firm knew, on the "as of" date, of any data that may have reasonably resulted in a lower contract price, then that data should have been disclosed. If the data were not disclosed prior to agreement on price, then they must be disclosed when the Certificate is submitted.
Failure to disclose the data constitutes defective pricing.

For example: An offeror's subcontract negotiator negotiated a $100,000 price reduction on the $450,000 subcontract proposal used as a basis for contract pricing. Data on the negotiated reduction were not disclosed to the offeror's negotiator or the Government because the subcontract had not been signed.
That would likely be considered defective pricing, because offeror personnel knew of the subcontract price reduction.

2.5.2 Identifying the Consequences Of Certifying Defective Data

Defective Pricing.

Defective pricing exists when any price, including profit or fee, for any purchase action covered by a Certificate of Current Cost or Pricing Data, is increased by any significant amount because the data were not accurate, complete, or current.

For example: The following table provides examples of defects related to the three different cost or pricing data requirements:

Defect	Example
Data are not accurate.	**The decimal point was accidentally or purposefully moved one place to the right. As a result, the costs used for trend analysis of a key component were ten times the actual cost.**
Data are not complete.	**The past history of vendor prices did not include two recent purchases with lower prices for the item being procured.**
Data are not current.	**Actual production costs for last month were available but not provided. Instead estimates were based on higher costs from earlier production.**

Government Rights Under Defective Pricing.

Under contract defective pricing clauses, the Government is entitled to:

2.5.2.1 A price adjustment, including profit or fee, for any price increase that resulted because defective data were provided by the contractor. (This is one reason why proper cost analysis documentation is so important.)

2.5.2.2 Interest on any overpayments that resulted from the defective pricing. When calculating overpayments, do not include contract financing.

2.5.2.3 Penalty amounts equal to the amount of any overpayments when the contractor knowingly submitted defective cost or pricing data. Obtain the advice of Government legal counsel, before taking any contractual actions concerning penalties.

When a defective pricing clause applies, the Government's right to a price adjustment under defective pricing is not affected by any of the following circumstances:

2.5.2.4 The contractor or subcontractor was a sole source supplier or otherwise was in a superior bargaining position and thus the contract price would not have been modified even if accurate, complete, and current cost or pricing data had been submitted;

2.5.2.5 The procurement officer should have known that the cost or pricing data were defective even though the contractor or subcontractor took no affirmative action to bring the character of the data to the procurement officer's attention;

2.5.2.6 The contract price was based on an agreement about the total cost of the contract and there was no agreement about the cost of each item procured under such contract; or

2.5.2.7 The contractor or subcontractor did not submit a Certificate of Current Cost or Pricing Data.

Offsets Under Defective Pricing. As you calculate the price adjustment due the Government under defective pricing, allow an offset for any estimates that were understated, because cost or pricing data submitted in support of the same pricing action were not accurate, complete, or current.

2.5.2.8 Never allow the offset to exceed the amount due the Government (i.e., the contract price can never increase because of defective pricing).

2.4.1.1 Only allow an offset in an amount supported by the facts and only if the contractor:

2.4.1.1.1 Certifies that, to the best of the contractor's knowledge and belief, the contractor is entitled to the offset in the amount requested, and

2.4.1.1.2 Proves that the cost or pricing data were available before the date of agreement on price but were not submitted. Offsets need not be in the same cost groupings as the defective pricing (e.g., material, direct labor, or indirect costs).

2.4.1.2 Never allow an offset if:

2.4.1.2.1 The understated data were known by the contractor to be understated before the "as of" date specified in the Certificate of Current Cost or Pricing Data, or

2.4.1.2.2 The Government proves that the facts demonstrate that the price would not have increased in the amount to be offset even if the available data had been submitted before the "as of" date specified in the Certificate of Current Cost or Pricing Data.

Offset example: Contract price was overstated by $100,000 because the offeror did not provide accurate, complete, or current material cost data. For the same contract action, contract price was understated by $75,000 because the offeror did not provide accurate, complete, or current wage rate data. The amount due the Government would be $25,000.

Penalties and Fraud for Knowingly Withheld Data. The following is an example of defective pricing identified by the General Accounting Office:

A contract was found to be overpriced by $1 million because the company did not disclose lower prices on seven material items. As negotiations were concluding, the material estimating department provided the firm's negotiator a 1-page update showing that substantially lower prices had been received on three of the seven items. However, the firm's negotiator did not disclose the lower prices to the procurement officer.

Contracting Situation	Analysis Purpose	Analysis Questions
You expect a single offer at or below the cost or pricing data threshold, and you do not expect to be able to determine price reasonableness using price analysis alone.	Support determination of price reasonableness	**Does the proposed price appear reasonable based on its relationship with estimated costs?**
You expect a single offer greater than the cost or pricing data threshold that will be excepted from cost or pricing data requirements, but you do not expect to be able to determine price reasonableness using price		

You expect competitive offers, but because of technical differences, you do not expect to be able to determine price reasonableness using price analysis alone.		
You expect competitive offers for a cost-reimbursement contract.	Cost realism analysis to determine probable final cost to the Government.	**Are proposed costs realistic for the work to be performed?** **Do proposed costs reflect a clear understanding of contract requirements?** **Are proposed costs consistent with the offeror's technical proposal?**
You expect competitive offers for a fixed-price contract, but new requirements may not be understood by all offerors.	Cost realism analysis to determine an offeror understands all contract requirements.	
You expect competitive offers for a fixed-price contract, but you have concerns about the performance quality that will result from each offeror's proposal.	Cost realism analysis to determine an offeror's ability to deliver proposed quality at the proposed price.	
You expect competitive offers for a fixed-price contract, but market analysis leads you to believe that some offerors may propose unrealistic prices that would jeopardize contract performance.	**Cost realism analysis to determine an offeror's ability to meet all contract requirements at the proposed price.**	

This is an example of a situation where you should obtain legal counsel before taking action.

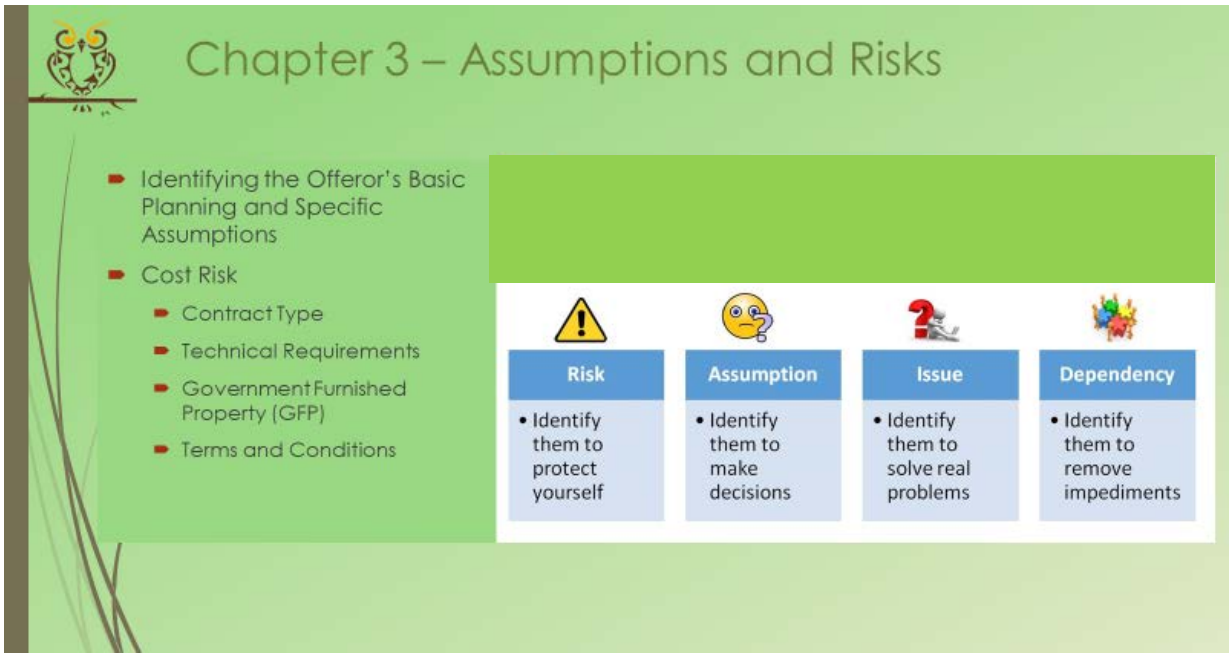
2.4.1.3 It appears that the Government may be entitled to penalty amounts equal to the amount of any overpayments, because the contractor knowingly failed to update its cost or pricing data.

2.4.1.4 However, the contractor's knowing failure to update its cost or pricing data also appears to be evidence of intent to defraud the Government. Possibly the case should be prosecuted as a fraud case rather than defective pricing.

The Government cannot pursue both remedies for the same overpricing. Legal counsel can provide you with advice on the proper course of action and the evidence required to support that course of action.

Audit Scrutiny. Most Government auditors consider repetitive findings of defective pricing findings in the same firm as an indicator of fraud. Thus, repetitive defective pricing findings may lead to substantially more intensive audit scrutiny.

CHAPTER 3: ASSUMPTIONS AND RISKS

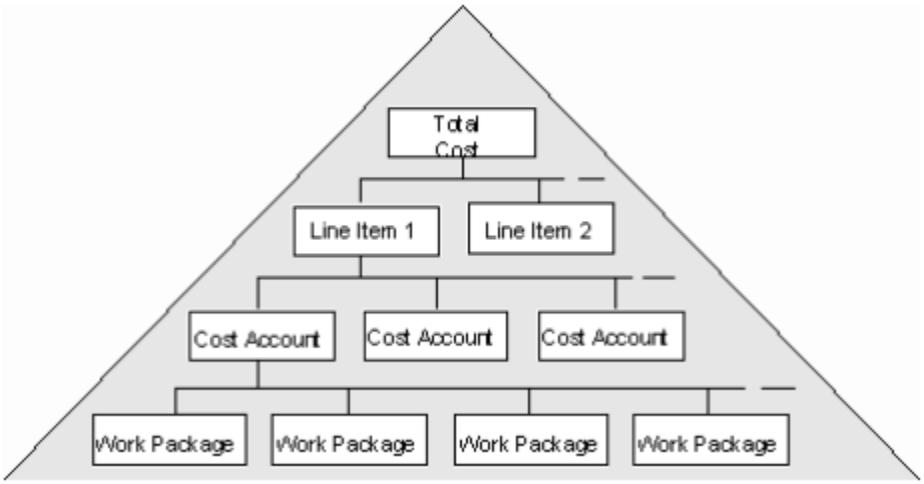


3.1 Chapter Introduction

As you perform your cost analysis, develop Government pricing objectives based on what the price of the contract should be if the firm operates efficiently and effectively. Scrutinize the offeror's assumptions and related work design, considering the factors identified in this chapter.

Proposal Structure. To understand and evaluate work design, you first need to break total cost into its basic elements. The proposal should include a description of the structure used in preparing the proposal. This description should resemble a pyramid, with total contract cost at the top.

Each lower level of the pyramid should further break total cost into its component costs until the foundation for proposal development is reached -- the work package.



Work Package. A proposal work package should:

- Serve as the foundation for proposal development;
- Describe a detailed short-term task that can be identified and controlled by the contractor in assigning contract effort;
- Distinguish the task to be performed from the work identified in all other work packages;
- Assign responsibility for work package completion to a single operating organization of the firm;
- Identify objective start and completion events which:
    - Are associated with physical accomplishments;
    - Can be scheduled to calendar dates; and
    - Can be objectively measured;
- Include a budget expressed in terms of dollars, work hours, or other measurable units.
- Minimize work in progress.

Work Breakdown Structure. The request for proposal (RFP) for a large complex system may require the offeror to provide cost information based on a Work Breakdown Structure (WBS) identified in the solicitation. This concept can be used in acquiring any large system, but it is most commonly used in acquiring large IT systems.

The WBS is a product-oriented family-tree division of hardware, software, services, and other work required to complete the contract. It organizes, defines, and graphically displays contract requirements and the work required to meet those requirements. The multiple levels of the WBS "explode" the work required down to identifiable work packages. In a common WBS:

- Level 1 is the entire system;
- Level 2 identifies the major elements of Level 1;
- Level 3 identifies the major elements of Level 2;
- Level 4 and later levels provide increasingly detailed information.

The number of levels of detail that you require in the solicitation, should depend on the complexity of the system and the perceived need for in-depth visibility.

3.2 Identifying The Offeror's Planning Assumptions

This section will identify points to consider as you identify and analyze offeror planning assumptions.

- 3.2.1 - Identifying Basic Planning Assumptions
- 3.2.2 - Analyzing Specific Assumptions
- 3.2.3 - Determining Proper Contingency Cost Treatment

3.2.1 Identifying Basic Planning Assumptions

Basic Planning Assumptions, Each proposal cost estimate is based on certain planning assumptions. Most good proposals specifically identify key assumptions at the beginning of the proposal. Whether the assumptions are identified or not, they exist. Because these assumptions are basic to cost estimate development, you should begin your cost analysis by identifying the offeror's assumptions.

You should be able to classify each of the offeror's assumptions into one of two basic perceptions of the future:

1. The future will be the same as the past.

If the offeror assumes that the future will be the same as the past, the proposal should explain the reason for that belief. Then the estimator should rely on data gathered from past performance in estimating future contract costs.

For example: An offeror is estimating the cost for a contract to manufacture 100 units of Product A. The firm has recently completed a contract to produce 100 units of Product A. The recent contract required 125 units of a key component. Based on that assumption, they would estimate that 125 units of that key component will be required to complete the proposed contract.

2. The future will be different from the past.

If the offeror assumes that the future will be different than the past, the offeror should rely less on historical data in proposal development. The offeror may estimate contract costs using a factor to adjust historical data or the offeror may rely on an estimating technique that is not based on historical data. In either case, the proposal should explain why the estimate provided is more reasonable than an estimate based on historical data.

For example: An offeror is estimating the cost for a contract to manufacture 200 units of **Product B**. The firm recently completed a contract to produce 200 units of Product B. The recent contract required 40,000 direct labor hours. However, the offeror believes that experience gained on the completed contract will make labor more efficient on the proposed contract. The estimator might adjust the historical labor hours using a quantitative technique (e.g., an improvement curve). Alternatively, the estimator might use an entirely different basis for estimate development (e.g., an industry labor standard).

Identify and Evaluate Planning Assumptions. As you begin your cost analysis:

- Identify the planning assumptions used by the offeror in proposal development.

The offeror's proposal may have a single overall statement of the assumptions used in planning. However, if the assumptions are not presented in one place, you must carefully review the proposal to find them. Often individual estimates will include statements about the assumptions and factors used in preparing that estimate.

- Develop a position on whether assumptions are realistic and consistent, and how they affect the proposal.

Request technical assistance in developing your position on technical assumptions (e.g., labor efficiency) and audit assistance in developing your position on financial assumptions (e.g., labor rate increases). For each assumption, you should ask specific questions based on the following:

- Is the proposal assumption realistic?
- Is the assumption consistent with the rest of the proposal?
- How does the proposal assumption affect contract cost?

3.2.2 Analyzing Specific Assumptions

Common Assumptions, Cost proposals typically involve many assumptions. The details of these assumptions will vary depending on the acquisition situation. However, you will find that most assumptions will involve the effect of one of the following on contract performance:

1. General performance problems;
2. Technology changes;
3. Interruptions and shortages; or
4. Inflation/deflation.

Because assumptions involving these topics are so common, you must be prepared to identify

and evaluate them in your analysis.

Identifying Assumptions Regarding General Performance Problems. When calculating the estimated cost of a proposal, an offeror will try to anticipate problems in the project that will affect contract cost. Problems may be related to any of the wide variety of factors affecting contract performance (e.g., technical, managerial, financial, environmental, etc.).

The proposal should estimate the likelihood that the problem will occur, and the cost involved. As you develop your pricing position, you must evaluate the reasonableness of the offeror's proposal and develop your own estimate of contract costs.

For example: Consider the assumptions and associated costs that an offeror might include in a proposal to produce rocket fuel using highly toxic and explosive chemicals. The proposal might include assumptions related to:

5. Locating a plant site;
6. Higher wages and employee benefit costs due to the danger associated with an untested and explosive product;
7. Meeting Occupational Safety and Health Administration (OSHA) and Environmental Protection Agency (EPA) regulatory requirements;
8. Waste disposal; or
9. Hazardous product storage.

Evaluating Assumptions Regarding General Performance Problems. When analyzing the offeror's assumption of an anticipated problem, answer the following questions:

- Is the proposal assumption realistic?

If answering this question is beyond your technical expertise, request a technical analysis. In your request for technical analysis assistance, specifically ask for an assessment of the likelihood of the problem occurring and the probable effect of the problem on contract performance.

- Is the assumption consistent with the rest of the proposal?

Sometimes a proposal will project a problem in one area of contract performance, but not in other areas that should be affected by the same problem. With assistance from technical experts, identify and resolve any apparent inconsistencies.

- How much should it reasonably cost to handle the problem?

Cost estimates should consider the likelihood that the problem will occur and the cost to resolve the problem if it does occur. Advice from technical personnel is generally invaluable in estimating a reasonable cost associated with a potential problem.

Identifying Assumptions Regarding Technological Changes. Technological change can affect the product, the production process, or both. In this time of rapid technological advancement and the often-long lead times for awarding Government contracts, an offeror must anticipate the effect technological change will have on contract performance and cost. The contract itself may require the offeror to assume the risk associated with developing new state-of-the-art technology.

In any case, the offeror must assess the likelihood of technological change and the effect of the change on contract cost. Assuming that an anticipated technological advancement will reduce contract costs may be risky. After all, many advancements that appear to be just around the corner do not actually happen, or if they occur do not bring the expected benefits.

As you develop your pricing position, you must evaluate the reasonableness of the offeror's proposal and develop your own estimate of contract costs. You cannot allow an offeror to ignore expected advancements that will lower contract cost, and you cannot automatically assume that every contract requiring an advance in the state-of-the-art will require an awesome effort with costs to match.

For example: An offeror is preparing a proposal to produce a new control subsystem that will replace and improve the existing control subsystem in an automated material handling system. The existing control subsystem has had significant problems because current technology does not permit the production of equipment that meets required reliability and maintainability standards. In preparing the proposal, the offeror should consider the:

- Costs associated with each method that might be used to advance the product state-of-the-art to meet Government requirements and the probability that method will succeed; and
- Costs associated with each method that might be used to advance the production process state- of-the-art to produce the new product and the probability that method will succeed.

Evaluating Assumptions Regarding Technological Changes. When analyzing the effect of anticipated technological changes on contract cost, consider the following questions:

- Are proposal assumptions about technological change realistic?

If answering this question is beyond your technical expertise, request a technical analysis. Remember that the offeror may have been overly optimistic or overly pessimistic in developing assumptions about technological change.

- Is the assumption consistent with the rest of the proposal?

Look for inconsistencies in the proposal assumptions about technological change. It is not uncommon for one part of a proposal to state that technology already exists, while another indicates that substantial effort will be required to obtain the same technology.

- What will be the cost/benefit of the indicated technological change to the proposed contract?

There may be ways of completing the contract that do not require technological change. Existing products and methods may be quite satisfactory. The required technology may already be available. Identifying Assumptions Regarding Interruptions and Shortages. There are many factors that might affect a contractor's ability to complete the contract on schedule, including:

- Reasonable interruptions by the Government under the terms of the contract (e.g., delays required to obtain required security clearances);
- Conflicts with other contractors performing related tasks; and
- Material shortages

Interruptions or shortages will result in a cost to the offeror, so the offeror will try to anticipate the likelihood of interruptions and include them in the total proposed cost. You will need to determine what interruptions may reasonably occur and the costs that would be incurred by the contractor as a result of those interruptions.

For example: An offeror is proposing to perform a contract for electrical rewiring on five reserve cargo ships. On a similar contract, the offeror experienced numerous delays because of scheduling conflicts with other contractors performing related work on the same ships. The firm expects similar working conditions on the proposed contract, so it has estimated costs based on the firm's experience on the earlier contract.

Evaluating Assumptions Regarding Interruptions and Shortages. When analyzing the effect of projected interruptions or shortages, consider the following questions:

- Are proposal assumptions about interruptions and shortages realistic?

In particular, remember that if the contractor can prevent the interruption or shortage without additional cost, you should not include additional cost in your position on contract price.

- Are proposal assumptions about interruptions and shortages consistent with the rest of the proposal?

Be particularly careful to assure that the effects of potential interruptions and shortages are only

considered once in a proposal. For example, an estimate based on the actual cost of previous contracts may already include costs of interruptions (e.g., security requirements) that are a common part of contract performance.

- Is the proposal estimate of the effect of an interruption or shortage reasonable?

Examine the reasonableness of the estimate prepared by the offeror based on the offeror's approach to the interruption or shortage. In addition, you should consider other approaches. If the Government customer can tolerate a delay in contract performance, it may be wiser to delay contract award until the danger of interruption or shortage is eliminated.

Identifying Assumptions Regarding Inflation/ Deflation. Offerors commonly consider inflation/deflation when making contract cost estimates based on historical contract costs. When the contract performance is expected to extend beyond a few months, an offeror may also include assumptions about inflation/deflation during contract performance.

For example: An offeror is preparing a proposal to manufacture 500 units of equipment to meet Government contract requirements. The firm completed a similar contract just nine months ago. Because the cost data are so recent, the firm has decided to estimate contract costs based on cost data from the recent contract plus five percent to allow for inflation since the last contract.

Evaluating Assumptions Regarding Inflation/ Deflation. When analyzing the effect of projected inflation/deflation, consider the following questions:

- Is the proposal assumption realistic?

There are numerous price indexes that you can use in evaluating the offerors assumed inflation/deflation. Be sure that any index numbers are appropriate for your analysis situation. Two of the most common index sources are the:

- Producer Price Index (PPI); and DRI/McGraw (DRI) Cost Information Services.
- Is the assumption consistent with the rest of the proposal?

Assure that it is appropriate to use an adjustment for inflation. For example, do not add an inflation factor to current quotes when contract material will be ordered and delivered immediately after contract award.

- How does the proposal assumption affect contract cost?

Remember that some prices are actually decreasing. Make sure that you consider potential price decreases as well as potential price increases

3.2.3 Determining Proper Contingency Cost Treatment

Contingencies. Most estimates of the cost of future contract performance involve contingencies. A contingency is a possible future event or condition arising from presently known or unknown causes, the outcome of which cannot be precisely determined at the present time.

For cost estimating purposes, contingencies fall into two categories:

1. Contingencies that arise from presently known and existing conditions, with effects on contract cost that can be forecast within reasonable limits of accuracy.

In other words, the contracting parties are aware of the conditions that will affect future costs and they are able to reasonably estimate the related effect on contract cost.

For example: An offeror is preparing an estimate of material cost. One material item is sheet metal that will be used to produce parts of different shapes. The offeror knows that some part of the metal will eventually become scrap. Using scrap records from similar contracts and an understanding of the proposed contract requirements, the offeror can develop a reasonably good estimate of proposed contract costs.

2. Contingencies that arise from presently known or unknown conditions, with effects on contract cost that cannot be forecast precisely enough to provide equitable results to the contractor and the Government.

In other words, the contracting parties cannot reasonably estimate contract costs for one of the following reasons.

- The contracting parties are aware of conditions that will affect future costs, but they are unable to reasonably estimate the related effect on contract cost.
- The contracting parties are not aware of all the conditions that will affect future contract cost and are therefore unable to reasonably estimate contract cost.

For example: A firm is involved in litigation concerning the proper interpretation of an apparent conflict between Government contract cost principles and state tax law. If the court accepts the state's position, contract costs will increase substantially. If the court accepts the contractor's (and the Government's) position, costs will remain unchanged. The case may not be resolved for several years. Right now, there is no way to forecast how the case will end, and there is no way to estimate the final effect of the litigation on contract cost.

Contingencies, Contract Costs, and Separate Agreements.

If you can reasonably estimate the cost associated with a particular contingency, include that estimated cost in the contract total cost estimate.

If you cannot reasonably estimate the cost associated with a particular contingency, exclude all costs related to that contingency from the contract cost estimate. Instead, the cost should be disclosed separately to facilitate the negotiation of appropriate contract coverage. Normally, that contract coverage will be based on a formal agreement about how the cost will be treated once the cost is known or can be equitably estimated. That agreement may apply to a single contract, group of contracts, or all contracts with the contractor.

- Before you begin negotiation of an agreement that is likely to affect more than one contract:
    - Identify contracts and contracting activities that might be affected;
    - Inform each contracting activity or agency of the matters that you intend to negotiate; and (as appropriate)
    - Invite the affected contracting activities or agencies and the cognizant audit agency to participate in prenegotiation discussions and/or subsequent negotiations.
- After you reach an agreement that is likely to affect more than one contracting activity or agency, distribute a copy of the executed agreement to other interested parties, including the cognizant audit agency.

Contingencies and Historical Costs. As stated above, a contingency is a possible future event or condition arising from presently known or unknown causes, the outcome of which cannot be precisely determined at the present time. Therefore, you should not include contingency-related costs in pricing positions based on actual incurred costs. If all contract costs are known, future events will no longer have any effect on contract cost.

For example: An offeror normally estimates direct labor hours for engineering support as five percent of manufacturing direct labor hours. The purpose of this contingency for engineering support is to estimate the hours required to resolve product design problems identified during product production. If you are analyzing a contract modification proposal after all manufacturing work is completed there will be no need for additional engineering support on that contract, because there will no more production design problems that require resolution. In that situation, concentrate on evaluating the reasonableness of actual costs. Do not simply calculate engineering support direct labor hours as five percent of actual manufacturing direct labor hours.

Note: In some cases (e.g. contract termination), you may need to use a contingency factor to

recognize minor unsettled contract factors. Make sure that the contingency factor does not duplicate costs already specifically included in available actual costs.

3.3 Applying Should-Cost Principles In Objective Development

This section identifies principles that you should consider as you attempt to determine what a contract should cost.

- 5.2.1 - Identifying Causes Of Inefficient Or Uneconomical Performance
- 5.2.2 - Performing A Formal Should-Cost Review Development

3.3.1 Identifying Causes Of Inefficient Or Uneconomical Performance

Key Areas for Cost Analysis. Once you have identified and evaluated offeror planning assumptions, you are ready to continue your cost analysis. As you do, remember that the objective of cost analysis is to review and evaluate the separate elements of cost to form an opinion on whether proposed costs represent what the cost of the contract should be, assuming reasonable economy and efficiency. Put another way, the objective of cost analysis is to develop a position on what the contract should cost, assuming reasonable economy and efficiency.

To attain this objective, you must understand where to look and what to look for. Key areas to check for possible improvements in economy and efficiency include:

- Contract task and subtask contribution to meeting contract requirements;
- Methods used in contract performance;
- Facilities used in contract performance;
- Equipment used in contract performance;
- Computer hardware and software used to support contract performance;
- Contractor management and operating systems; and
- Other aspects of contract performance.

Contract Task and Subtask Contribution to Meeting Contract Requirements. Examine the tasks and subtasks within the work packages of the contractor's proposal to see if they are necessary and if they really add value to the final product.

For example: A manufacturer's proposal may include repetitive tests of the same product performed by workers, line managers, and various quality assurance personnel. Even with all of this repetitive testing, the number of defective units is still projected to be a large percentage of total production. Likely many of these tests can be eliminated by greater reliance on worker application of statistical process control techniques. The result could be improved quality and reduced cost.

Methods Used in Contract Performance. With the assistance of technical personnel, examine offeror- proposed methods for possible improvement. Consider both different methods and improvements to existing methods. Question any methods that appear inefficient or uneconomic.

For example: Some tasks can be performed manually, but they can be performed more efficiently and effectively using automated equipment.

Facilities Used in Contract Performance. Examine facilities and facility layout for possible changes that might reduce costs and improve contract performance. When appropriate, complete a cost-benefit analysis as part of your examination. In simple terms, a cost-benefit analysis compares the savings from the change with the cost of making the change. If the costs are less than the savings, then the change is worth pursuing.

For example: The cost of fabricating a system component could be reduced by $150,000 per unit if a new $1,000,000 facility were placed in operation. The current proposal is for six systems and the facility would not be operational until the fourth system. However, the total program calls for

production of 38 systems over the next five years.

- Is it cost effective to invest in the new facility considering onlythe current contract?

If you only consider the six remaining systems under the current contract, the new facility would increase costs by $100,000.

Net Benefit = (Savings per Unit * Units) - (Cost of Change)

= ($150,000 * 6) - $1,000,000

= $900,000 - $1,000,000

= - $100,000

- Is it cost effective to invest in the new facility considering projected requirements?

If you consider the projected 38 system requirement, the new facility would decrease costs by $4,700,000.

Net Benefit = (Savings per Unit * Units) - (Cost of Change)

= ($150,000 * 38) - $1,000,000

= $5,700,000 - $1,000,000

= $4,700,000

- Should you only consider the current contract, or should you consider projected requirements?

In the example above, if you only consider the current contract, the investment would not be cost effective. If you consider all 38 systems, the savings would substantially outweigh the cost of the investment. When evaluating which results to use in your analysis, you should consider the viability and direction of the entire program

Note: To simplify the examples above, the concept of present value analysis and cost of money adjustments were not considered. You should include both in any contract-related cost-benefit analysis.

Equipment Used in Contract Performance. Examine equipment and contract requirements for possible inefficient or uneconomical performance. Equipment may be inefficient, out of tolerance, or expensive and time consuming to maintain. The projected production rate may be significantly greater or less than the optimum rate for the equipment. In any case, you should review the total shop loading for a machine or work station, not just the current proposal.

For example: The offeror proposes to use a large piece of automated equipment to meet contract subsystem requirements. The capacity of this equipment is 20,000 units per day, but the contractor is currently producing only 2,800 units per day. A cost benefit analysis shows that the cost of producing the small number of units required is about twice the cost of using a system designed to produce 4,000 units per day.

Computer Hardware and Software used to Support Contract Performance. The cost of computer resources used to support the contract could be categorized as a direct cost (specific to the program), or indirect cost (general purpose). Both categories are worth attention. Check both categories for inefficient and uneconomical use. In particular, look for duplications in computer resources, because duplications are commonly found at all types of contractors.

For example: An offeror's Data Automation Department has the capability to perform program planning analysis. Department A uses its own, non-networked personal computers for its program planning analysis. Department B uses computers on a local area network for the same tasks but with software that is not compatible with Department A or the Data Automation Department. This duplication is costly and there are substantial opportunities for cost reduction.

Contractor Management and Operating Systems. Examine the effect of management systems on contract performance and contract cost. In particular, look for inefficient or unnecessary systems.

Since business automation has reduced the need for many clerical and mid-level management functions, these functions are good targets for improvement. Look for ways to eliminate nonvalue-added functions and shorten the line of communication and authority.

For example: A contractor is producing a large system to meet unique Government requirements. Effective scheduling of the firm's vast resources is essential to efficient contract performance. Over the past year, the firm has had several lay-offs in key production areas. Later the employees were recalled and put on substantial overtime to meet production requirements. Experts estimate that an effective scheduling system could have reduced the cost of these operations by 25 percent.

Other Aspects of Contract Performance. Depending on the type of contract effort involved, the specific circumstances of the acquisition, and contractor's particular practices, other aspects of the total environment may deserve attention. While these aspects differ greatly from contract to contract, some of the possible candidates include:

- Business forecasting,
- Staff planning,
- Capital investment planning,
- Test planning, and
- Anything else that has the potential of significantly affecting contract cost.

3.4 Recognizing Cost Risk

In this section, you will learn to identify the types of risks inherent in an offeror's cost estimate and how these risks affect the offeror's estimate.

- 5.3.1 - Identifying Principal Sources Of Cost Risk
- 5.3.2 - Assessing The Level Of Risk
- 5.3.3 - Using Contract Type To Mitigate Risk
- 5.3.4 - Using Clear Technical Requirements To Mitigate Risk
- 5.3.5 - Using Government Furnished Property To Mitigate Risk
- 5.3.6 - Using Contract Terms And Conditions To Mitigate Risk

3.4.1 Identifying Principal Sources Of Cost Risk

When the offeror considers entering into a contract with the Government, the offeror must consider the risk of the various contract obligations.

The risk to the offeror can be viewed from several perspectives:

- **Investment risk** -- the risk in recovering the money invested by the offeror to perform the job.
- **Economic risk** -- the risk in earning a reasonable profit on the investment, especially when compared to other possible investments.
- **Performance risk** -- the risk in successfully performing the work required by the contract.

You can be assured that, as long as there is a reasonable expectation of success and the profit or other payoff is great enough to warrant taking the risk, there will be contractors available to take on the work. However, if the outcome is too uncertain and the rewards too little for the risk involved, you might NOT find a responsible contractor willing to submit an offer.

Investment Risk. In order to perform on a contract, the offeror may have to plan to make costly investments for such things as facilities, equipment, and materials. The offeror will need a

reasonable assurance that these investments will be recouped from contract performance. If the offeror feels that the investments are for facilities, equipment, and materials that can only be used for a specific Government product, then the offeror may conclude that the investment risk is too great. Or, the offeror may choose to avoid such investment risk by proposing a less efficient use of manual labor, instead of investing in more efficient-and more expensive-facilities and equipment. You should not use a fixed-price contract when the methods required to complete the contract are not well established and costs cannot be reasonably estimated. If you do, the uncertainty will likely have one of two results:

- Competition will decrease, because potential offerors will decline to submit a proposal rather than accept the risk, or
- Costs will increase, because offerors will "pad" their estimates to cover the uncertainties.

Cost-Reimbursement Contracts. Cost-reimbursement contracts provide for reimbursement of all allowable contract costs whether or not the contractor completes all contract requirements.

- Consider a cost-reimbursement contract when cost risk is high, and the contractor cannot estimate cost with reliable accuracy.
    - These conditions commonly exist when the contract requirements are only generally defined, and the amount of work needed to complete the contract is uncertain.
    - Cost-reimbursement contracts deal with this uncertainty by only requiring the contractor to deliver its "best effort" to provide the product.
- You should not use a cost-reimbursement contract when contract risk is low, because cost- reimbursement contracts require substantial administration and do not provide the same motivation to control costs that is provided by fixed-price contracts.

Most Frequently Use Contract Types. There are different types of contracts within both the fixed-price and cost-reimbursement categories. Each type deals differently with cost risk. You will want to select the contract type best suited to each requirement.

Consider all available contract types, but the most commonly used are:

- Firm fixed-price (FFP); Fixed-price economic price adjustment (FPEPA);
- Fixed-price incentive firm (FPIF);
- Cost-plus-incentive-fee (CPIF);
- Cost-plus-award-fee (CPAF); and
- Cost-plus-fixed-fee (CPFF).

Cost Risk and Contract Type. The following figure uses the stages of a major system acquisition to demonstrate how contract type alternatives typically change as contract requirements become better defined and the amount of work needed to complete the contract more certain.

3.4.2 Assessing the Level of Risk

Cost Risk and Contract Type						
Cost Risk	**High<==========>Low**					
Requirement Definition	**Poorly-defined <==========>Well-defined Requirement Requirement**					
Production Stages	Concept Studies & Basic Research	Exploratory Development	Text / Demonstration	Full-scale Development	Full Production	Follow-on Production
Contract Type	**Varied types of cost-reimbursement contracts**	**CPFF**	**CPIF or FPIF**	**CPIF, FPIF, or FFP**	**FFP, FPIF, or FPEPA**	**FFP, FPIF, or FPEPA**

3.4.3 Using Contract Type to Mitigate Risk

Firm Fixed-Price (FFP). When the contractor is able to accurately estimate the cost of the work called for in the contract and the cost risk to the offeror is therefore very low, use an FFP contract.

An FFP contract places ALL cost risk on the contractor. It requires the Government to pay a specific price when the contract items have been delivered and accepted. Unless there are contract modifications, the price for the original work is NOT adjusted after contract award regardless of the contractor's actual cost experience.

Fixed-Price-Economic Price Adjustment (FPEPA). When there are volatile economic conditions (e.g., an unstable labor or material market) outside of the contractor's control that could affect contract cost, a FFP contract may not cover the offeror's cost risk sufficiently. In this situation, you should consider a contract that allows for price adjustments due to changes in economic conditions. FPEPA contracts are designed to cope with economic uncertainties that would threaten long- term, fixed-price arrangements. Economic price adjustment clauses provide for both price increases and decreases to protect the Government and the contractor from the effects of economic changes.

If you use an FFP contract instead of an FPEPA contract, you can expect offeror's to include contingency allowances in their proposals to eliminate or reduce the risk of loss. Including such contingency allowances in contract prices is not a good solution for either the contractor or the Government. The contractor may be hurt if the changes exceed the estimate and the Government may pay unreasonably high prices if the contingency does not materialize.

Fixed-Price Incentive Firm (FPIF). In circumstances where contract requirements are largely defined but major performance uncertainty still exists (e.g., the first production run of a completely designed and tested prototype product), there will still be major cost risk but much of that risk can be limited by effective contract performance. Consider using a fixed-price incentive firm (FPIF) contract to give the contractor an incentive to effectively control costs.

The basic structure of the FPIF contract includes the following elements:

- Target cost;
- Target profit;
- Ceiling price; and
- Under-target and over-target sharing formulas.

Costs under target are shared according to the share ratio established in the under-target

sharing formula. Costs over target are shared according to the over-target sharing formula until the sum of incurred costs and profit equal the ceiling price -- the point of total assumption (PTA). At the PTA, cost risk responsibility shifts completely to the contractor. Each additional dollar of cost will reduce the contractor's profit or increase the contractor's loss by one dollar.

Cost-Plus-Incentive-Fee (CPIF). When the contract calls for such risky ventures as the development and testing of a new system, the offeror's risk may be too high for any fixed-price type contract. However, you may still want to motivate the contractor to control costs. If you can negotiate a target cost and a fee adjustment formula that will motivate the contractor, consider using a CPIF contract.

The basic structure of a CPIF contract includes the following elements:

- Target cost;
- Target fee;
- Maximum fee;
- Minimum fee; and
- Under-target and over-target sharing formulas.

The cost risk on this type of contract is shared by the Government and the contractor according to "sharing formulas" with limits that assure the minimum fee is large enough to motivate effective contract performance, but the maximum fee is not unreasonably large for the risk involved. These limits create a range of incentive effectiveness around the target cost.

- If the costs fall within the limits, they are shared by the contractor and the Government using the under-target or over-target sharing formula.
- If the costs go above the upper limit, the Government is responsible for contract costs and the contractor receives the minimum fee identified in the contract.
- If the costs fall below the lower limit, the Government is responsible for contract costs but the contractor's fee is limited to the maximum fee identified in the contract.

Cost-Plus-Award-Fee (CPAF). When the required contract level of effort is uncertain and it is neither feasible nor effective to devise predetermined incentive targets based on cost, technical, or schedule, consider the use of a CPAF contract if:

- The likelihood of meeting acquisition objectives can be enhanced by a flexible plan that awards fee after an evaluation of both performance and the conditions under which it was achieved; and
- The expected benefits justify the additional cost and effort required to monitor and evaluate performance.

The CPAF contract provides for a fee consisting of two parts:

- Base fee agreed to at the time of contract award; and
- Award fee that the contractor may earn in whole or in part during contract performance based on such criteria as quality, timelines, technical ingenuity, and cost effective management.

CPAF contracts MUST provide for fee evaluations at stated points during contract performance. The points may be at stated intervals (e.g., quarterly) or at stated milestones of contract performance (e.g., completion of a product design test).

Cost-Plus-Fixed-Fee (CPFF). When the work required to complete a contract is so uncertain (e.g., a development or maintenance contract) that establishment of predetermined targets and incentive sharing arrangements could result in a final fee out of line with the actual work performed, you should consider a cost-plus-fixed-fee contract.

This type of contract is designed chiefly for use in research or exploratory development or operation

and maintenance types of contracts where the level of contractor effort CANNOT be accurately estimated.
The Government agrees to reimburse the contractor for all allowable costs incurred during the performance of the contract up to the contract cost or funding limits. Moreover, the Government agrees to pay the contractor a fixed number of dollars above the cost as a fee for doing the work. Fee dollars are fixed at time of contract award and change only if the scope of work changes.

Contract Type Selection.
The following table describes five acquisition situations and the appropriate contract type for each situation.

When ...	Select a ...
The offeror can accurately estimate cost.	Firm Fixed-Price Contract
Economic conditions that will likely affect cost significantly are outside of the offeror's control, but otherwise the offeror can accurately estimate cost.	Fixed-Price Economic Price Adjustment Contract
There are substantial cost uncertainties, but it should be possible to reasonably estimate maximum cost and effective contractor management should be able to assure that final costs will not exceed the estimated maximum cost.	Fixed-Price Incentive Firm Contract
The cost uncertainties are so great that any fixed-price contract would force the contractor to accept an unreasonable risk, but you can negotiate reasonable targets and formulas for sharing costs.	Cost-Plus-Incentive-Fee Contract
The contract level of effort is uncertain, and it is NOT feasible or effective to negotiate an adjustment formula, but the likelihood of meeting objectives can be enhanced by a clear subjective fee plan.	Cost-Plus-Award-Fee Contract
Cost uncertainty is so great that establishment of predetermined targets and incentive sharing arrangements could result in a final fee out of line with the actual work.	Cost-Plus-Fixed-Fee Contract

Cost-Plus-Percentage-Cost (CPPC)
BEWARE! The CPPC contract is illegal in Federal Government contracting and unallowable in the State of Hawaii unless approved per HRS §103D-313(c). A CPPC contract can occur in any situation where the contractor is allowed to increase fee by increasing cost, thereby creating a negative cost control incentive. If the answers to the following four questions are yes, you have a CPPC contract.

- Will fee be paid based on a predetermined percentage fee rate instead of an identified dollar value?
- Will the predetermined percentage fee rate be applied to actual future performance costs?
- Is the contractor's fee entitlement uncertain at the time of contract pricing?

- Will the contractor's fee entitlement increase as performance costs increase?

3.4.4 Using Clear Technical Requirements To Mitigate Risk

Requirements and Risk. You can influence the inherent risk of a project by using clear contract technical requirements. If the requirements are actually impossible to perform, conflict, or are open to interpretation, the Government and the contractor are at risk of unacceptable or substandard contract performance.

Government and contractor technical personnel must understand, however, that if any technical problems are identified, they MUST be brought to the attention of the procurement officer **immediately**. The longer the problems exist without resolution, the greater the risk to both the Government and the contractor.
Costly legal actions can result from defective technical requirements.

Impossible Requirements. The writer of the contract requirements is responsible for their accuracy. If technical requirements are impossible to meet (e.g., a set of drawings has mistakes that make the product impossible to build), the writer of the requirements is the responsible party and liable for any related additional costs. Since the Government writes contract requirements, the Government is liable for reasonable additional costs related to those requirements.

Conflicting Areas Within Requirements. Contract technical requirements do NOT have to be written so poorly that they are impossible to perform for them to have a detrimental effect on contract performance. If requirements conflict with each other, changes and rework can cause costly delays. Again, the Government, as writer of the contract requirements, is responsible and liable for reasonable additional costs.

Requirement Ambiguity. Make sure the contract requirements are written as clearly as possible. Ambiguities can lead to misinterpretation. The Government will be held liable, as writer of the contract, for any ambiguity resulting in additional costs.

3.4.5 Using Government Furnished Property To Mitigate Risk

Government Furnished Property and Risk. Government furnished property (GFP) is one way you can reduce the risk to the contractor and thus make a contract more attractive. GFP, including Government- owned equipment, facilities, and materials, provided to the contractor can lower contract costs by shifting investment risk from the contractor to the Government.

Risks Assumed with GFP. By providing GFP to the contractor, the Government accepts risk in one of several ways:

- **Investment Risk**. GFP will shift the risk of NOT recouping the initial capital expense for the property to the Government.
- **Property Loss Risk**: If the property might be destroyed or be a hazard during or after contract performance (e.g. high explosives or rocket fuel production), the Government assumes the risk of property loss.
- **Market Risk**. The Government may reduce the risk to the contractor on production materials by providing them as GFP. Using its buying power, the Government may be able to purchase materials at lower prices than are available to the individual contractor and less risk of changes in market prices (e.g., special purpose fuels that are often supplied to contractors).

Positive Effects of GFP. GFP has positive effects for the contractor and for the Government:

- The **contractor** avoids risky investment, high liability costs, and the need to include contingencies in its proposal.

- The **Government** has lower cost on the current contract and reduced risk on future contracts, because the Government has the option of moving the GFP from one contractor to another, thus avoiding a high-cost, sole-source situation.

Negative Effects. The largest negative effect of using GFP is the large amount of administrative effort required on the part of both the Government and the contractor to track, maintain, and dispose of GFP. Large companies have entire departments dedicated to property administration. Smaller firms can easily be overwhelmed by the administrative burden.

If GFP is not properly administered, it could be lost or used inappropriately on non-Government work allowing a contractor a competitive advantage over other competitors at Government expense.

3.4.6 Using Contract Terms and Conditions To Mitigate Risk

Contract Terms and Conditions and Risk. Contract terms and conditions can provide an avenue for tailoring requirements to specific contract cost risk concerns. Consider the needs of the Government, commercial practice, the capabilities of the offerors, and elements of risk identified in the offeror(s) proposal. It may be possible to reduce contractor risk and contract cost while still meeting the needs of the Government. The following are examples of how contract terms may be used to reduce cost risk:

Example 1: When a contract specifically requires the contractor to obtain a portion of contract performance from firms in other nations, accepting defined risks associated with that requirement can substantially reduce contractor cost risk (e.g., currency fluctuation risk or performance risk associated with international production).

Example 2: Allowing variations in delivery schedules can reduce contract cost risk by allowing for optimal production and shipping schedules.

Example 3: Obligating the Government to provide existing Government data can eliminate the cost and risk associated with the contractor obtaining the data from other sources.

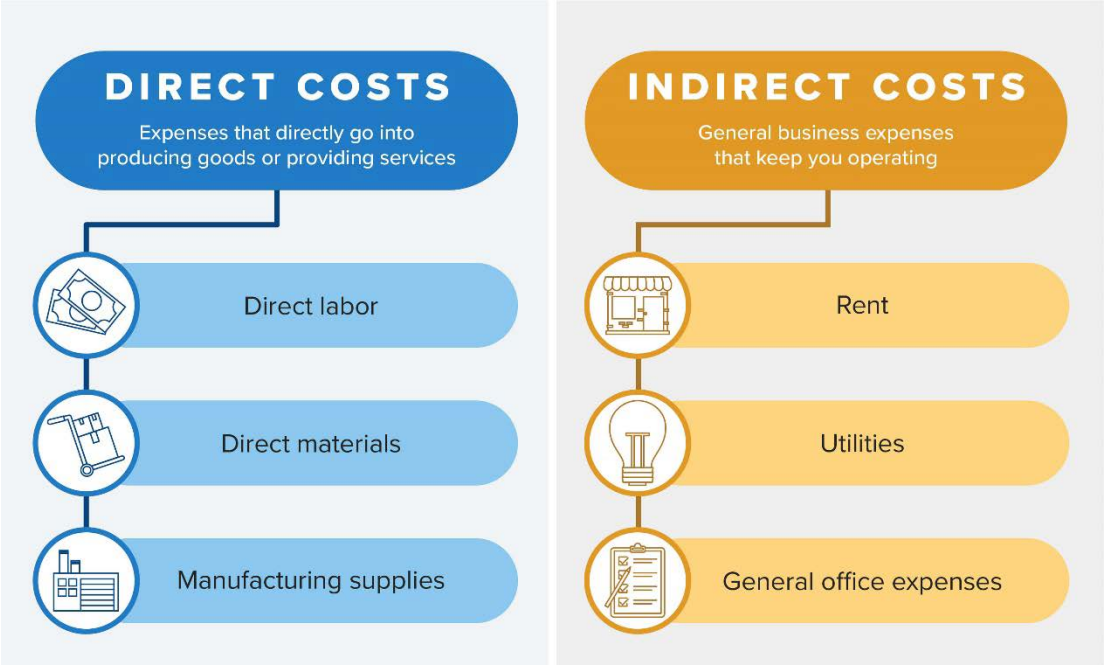
Example 4: Permitting variations in delivery quantities can reduce risk by allowing for standard lot shipments and the elimination of excessive administrative work related to insignificant shipment shortages or overages.

Example 5: Unusual contract financing in lieu of customary contract financing can reduce contractor cost risk on a long-term contract requiring significant capital investment.

Chapter 4. DEFINING CONTRACT COSTS

4.1 Defining Contract Costs

Contract Costs. Contract costs are monetary measures of the capital and labor required to complete a contract. Not all contract costs result from cash expenditures during the contract period. Accrual accounting provides for the matching of revenues and expenditures. Thus, some costs are recorded in the accounting records even though there has not been an actual cash expenditure. The total cost of a contract is the sum of the direct and indirect costs allocable to the contract, incurred or to be incurred, less any allocable credits.



Direct Cost. A direct contract cost is any cost that can be identified specifically with a final cost objective (e.g., a particular contract).

- Costs identified specifically with a particular contract are direct costs of the contract and are charged to that contract.
- Costs must not be charged to a contract as direct costs if other costs incurred for the same purpose in like circumstances have been charged as indirect costs to that contract or any other contract.
- All costs specifically identified with other contracts are direct costs for those contracts and shall not be charged to another contract directly or indirectly.

For example: The cost of 5,000 pounds of sheet metal used to fabricate covers for equipment built under a Government contract would be charged directly to that contract and no other contract.

Indirect Cost. An indirect cost is any cost NOT directly identified with a single final cost objective but identified with two or more final cost objectives or an intermediate cost objective.

- After the contractor has charged all direct costs to contracts (or other final cost objectives), indirect costs are those remaining to be allocated to the various cost objectives.
- The distribution of indirect costs among various contracts should be based on the benefit accrued. If the contract did not benefit, it should not share the indirect cost.
- Costs must not be charged to a contract as indirect costs if other costs incurred for the same purpose in like circumstances have been charged as direct costs to that contract or any other contract.

For example: A contractor is simultaneously working on two contracts in the same rented building. The rent for that building should be allocated to those two contracts as an indirect cost. If one contract used 60 percent of the building, it should be allocated about 60 percent of the rent expense. Other contracts that do not benefit from the use of the building should not be allocated any rent expense for the building.

Alternative Direct Cost Treatment. For reasons of practicality, any **direct cost of minor dollar amount** may be treated as an indirect cost if the accounting treatment:

- Is consistently applied to all final cost objectives, and
- Produces substantially the same results as treating the cost as a direct cost.

For example: The cost of inexpensive rivets used to fabricate equipment would be a direct cost. However, the cost of tracking each rivet to each unit of equipment could be more than the cost of the rivets themselves. It might be more practical to treat the cost of these rivets as an indirect cost and allocate that cost to all items that use those rivets. Remember this method may only be used if it is consistently applied to all cost objectives and produces substantially the same results as treating the rivet cost as a direct cost.

Direct/Indirect Cost Decision. The decision to classify a cost as direct or indirect is not always a clear choice. There is no absolute list of costs that must be treated as direct costs or indirect costs. Contractors have the right and responsibility to define costs within their own accounting systems. At the same time, the Government prescribes guidelines for use by contractors in making their decisions and for use by you in reviewing the appropriateness of their decisions. Two sources of guidance are particularly important.

- The Hawaii Revised Statute (HRS) and associated Hawaii Administrative Rules (HARs) provides both general and specific guidelines on accounting for costs.
- Generally Accepted Accounting Principles (GAAP) are general rules used by all business entities. They are non-regulatory guidance developed and used by Certified Public Accountants. However, they provide the general guidelines followed by all firms in accounting system development. They are required to be followed for Government contract costing when the CAS does not apply and/or is silent, and when the HRS/HARS are silent.

The role of Government representatives is not so much directing or approving the direct/indirect cost

decision as it is reviewing the adequacy and acceptability of contractor's accounting systems for use in Government contracting.

4.2 Defining The Cost Estimating And Cost Accounting Relationship

Cost Estimating System.

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

- Organizational structure;
- Established lines of authority, duties, and responsibilities;
- Internal controls and managerial reviews;
- Flow of work, coordination, and communication; and
- Estimating methods, techniques, accumulation of historical costs, and other analyses used to generate cost estimates.

An acceptable estimating system should provide for the use of appropriate source data, utilize sound estimating techniques and good judgment, maintain a consistent approach, and adhere to established policies and procedures.

Characteristics of an Acceptable Estimating System. When evaluating the acceptability of a contractor's estimating system, consider whether it:

- Establishes clear responsibility for preparation, review and approval of cost estimates;
- Provides a written description of the organization and duties of the personnel responsible for preparing, reviewing, and approving cost estimates;
- Assures that relevant personnel have sufficient training, experience and guidance to perform estimating tasks in accordance with the contractor's established procedures;
- Identifies the sources of data and the estimating methods and rationale used in developing cost estimates;
- Provides for appropriate supervision throughout the estimating process;
- Provides for consistent application of estimating techniques;
- Provides for detection and timely correction of errors;
- Protects against cost duplication and omissions;
- Provides for the use of historical experience, including historical vendor pricing information, where appropriate;
- Requires use of appropriate analytical methods;
- Integrates information available from other management systems, where appropriate;
- Requires management review including verification that the company's estimating policies, procedures and practices comply with applicable regulations;
- Provides for internal review of and accountability for the adequacy of the estimating system, including the comparison of projected results to actual results and an analysis of any differences;
- Provides procedures to update cost estimates in a timely manner throughout the negotiation process; and

- Addresses responsibility for review and analysis of the reasonableness of subcontract prices.

Indicators of Potentially Significant Estimating System Deficiencies. Be on the lookout for conditions that may produce or lead to significant estimating deficiencies. This includes:

- Failure to ensure that historical experience is available to and utilized by cost estimators, where appropriate;
- Continuing failure to analyze material costs or failure to perform subcontractor cost reviews as required;
- Consistent absence of analytical support for significant proposed cost amounts;
- Excessive reliance on individual personal judgment where historical experience or commonly utilized standards are available;
- Recurring significant defective pricing findings within the same cost element(s);
- Failure to integrate relevant parts of other management systems (e.g., production control or cost accounting) with the estimating system so that the ability to generate reliable cost estimates is impaired; and
- Failure to provide established policies, procedures, and practices to persons responsible for preparing and supporting estimates.

Cost Accounting System. An effective cost estimating system integrates applicable information from a variety of company management systems. The accounting system is not the only source of such information, but it is the primary source.

A firm's accounting system consists of the methods and records established to identify, assemble, analyze, classify, record, and report the firm's transactions and to maintain accountability for the related assets and liabilities. The accounting system should be well-designed to provide reliable accounting data and prevent mistakes that would otherwise occur.

An inadequate cost accounting system can provide data that are not current, accurate, and complete data in support of an offeror's proposal. The defective cost data can create inaccurate estimates no matter how well the estimating uses the data provided.

Characteristics of an Adequate Accounting System. To provide the data required for cost estimating purposes, a firm's cost accounting system must contain sufficient refinements to provide (where applicable) cost segregation for:

- Preproduction work and special tooling;
- Prototypes, static test models, or mockups;
- Production by individual production centers, departments, or operations-as well as by components, lots, batches, runs or time periods;
- Engineering by major task;
- Each contract item to be separately priced;
- Scrap, rework, spoilage, excess material, and obsolete items resulting from engineering changes;
- Packaging and crating when substantial; and
- Other nonrecurring or other direct cost items requiring separate treatment.

Two Common Cost Accounting Systems. There are two commonly-used systems for cost accounting, job- order and process. Either system can provide adequate results, when it is properly maintained by the firm. However, system differences will affect the presentation of available information.

Job-Order Cost Systems. Under a job-order cost system the firm accounts for output by specifically identifiable physical units. The costs for each job or contract normally are accumulated under separate job orders.

Job Order Cost System Company	Product
Young & Rubicam, J. Walter Thompson	Advertising 
Walt Disney, Warner Brothers	Motion pictures 
Center Ice Consultants, Ice Pro	Ice rinks 
Kaiser, Mayo Clinic	Patient Health Care 

- When a contract is for a limited number of units that are neither very complex nor costly, the costs of all units may be accumulated under one job order without any further breakdown.
- When the contract is for items that are both complex and costly, the total quantity may be broken down into smaller production lots. The job order for the total contract may be supported by a separate job order for each lot.
    - The use of lots permits the contractor to establish better control over the work, and the historical cost data from a series of lots lend themselves to a projection of estimated costs for future production.
    - Experience with the product normally determines the number of units for which costs are to be accumulated.

For example: A contract for 100 units of an item that has never been produced may have 10 separate lots under the job order. Four years and thousands of units later, the costs for a quantity of 100 units may be accumulated under the contract job order without any further breakdown by lot.

- Because the physical units of production under a job-order cost system are identified with specific job orders and lots, the labor distribution and accumulation system used by the contractor will identify the direct factory labor cost associated with the units produced under such job-orders and lots. Supporting data will identify:
    - All persons who worked on the items produced, how much time they expended, and their rates of pay.
    - Total labor cost with subtotals and breakdowns by types of labor.

Process Cost Systems. Under a process cost system, direct costs are charged to a process even though end-items (which may not be identical) for more than one contract are being run through the process at the same time. At the end of the accounting period, the costs incurred for that process are assigned to the units completed during the period and to the incomplete units still in process.

Process Cost System Company	Product
Coca-Cola, PepsiCo	Soft drinks 
ExxonMobil, Royal Dutch Shell	Oil 
Intel, Advanced Micro Devices	Computer Chips 

- Process cost systems are typically used by firms that continuously manufacture a particular end-item, like automobiles or chemicals which require identical or highly similar production processes. A process is one part of a complete set of activities that an item must pass through during manufacture.
    - The completed item results from a series of processes, each of which produces some changes in the item.
    - The number of processes involved will vary with the complexity of the item.
    - The greater the similarity between two end-items, the more likely they are to go through the same process, during the same period of time, with factory laborers

devoting a part of their time to each item.

- A number of different methods may be used to assign costs to end items.
    - If all items being processed are identical, the contractor may add the costs incurred during the accounting period to the cost of the beginning work-in-process inventory and subtract the estimated cost of the ending work-in-process inventory to arrive at the total costs of items completed. Unit cost is determined by dividing the total cost by the number of units completed.
    - If all items being processed are not identical, the contractor may use standard costs and, at the end of the accounting period, multiply the standard cost for each item by the number of units completed to arrive at a total cost. Variance from standard can be accounted for and assigned to end-items in a number of different ways.
- Normally an item will go through more than one process. When an item comes out of one process and enters another, its cost from the process just completed will be charged to the next process, usually as material cost. This continues until the completed end-item emerges from its last process.
- A process cost system identifies which factory employees charged their time to which processes, what their rates of pay were, and the total cost charged to the process.
    - Unlike a job-order cost system, you cannot determine the actual labor cost for specific end-items that have gone through a process, because cost elements lose their identity when they are charged to the next process as material costs.
    - You can generally add standard cost and a factor for variances and arrive at an acceptably close approximation of actual labor cost.

4.3 Describing Cost Estimating Methods

Principles For Method Selection. An offeror may use any generally accepted estimating method that is equitable and consistently applied.

An estimating method is...	When...
Equitable	It produces fair and reasonable results for all contracts and all customers of the firm. No individual or group of contracts or customers benefits at the expense of others.
Consistently applied	It is applied in similar estimating situations for all contracts and all customers of the firm. However, different estimating methods may be applied in different estimating situations. Differences may be related to such factors as: ● The relative dollar value of the estimate; ● The firm's competitive position; ● The definition of contract requirements; or ● The availability of cost information applicable to the same or a similar product/service.

Basic Cost Estimating Methods. There are a variety of techniques that can be used to estimate

contract cost. The most common classification identifies three methods: round-table, comparison, and detailed.

Estimating Method	Explanation
Round-Table	Experts are brought together to develop cost estimates, by exchanging views and making judgments based on knowledge and experience. Most commonly used when there is little or no cost experience or detailed product information (e.g., specifications, drawings, or bills of material).
Comparison	Under this method, costs for a new item are estimated using comparisons with the cost of completing similar tasks under past or current contracts. Any differences are isolated and cost elements applicable to the differences are deleted from or added to experienced costs. Comparisons may be made at the cost element level or total price level. Adjustments may also be made for possible upward or downward cost trends. Most commonly used when specifications for the item being estimated are similar to other items already produced or currently in production and for which actual cost experience is available.
Detailed	This method is characterized by a thorough review of all components, processes, and assemblies. It requires detailed information to arrive at estimated costs and typically uses cost data derived from the accounting system, adjunct statistical records, and other sources. Most commonly used when the required information is available and future production potential warrants the cost of the detailed analysis required. It is the most accurate of the three methods for estimating direct cost. It is also the most time consuming and expensive.

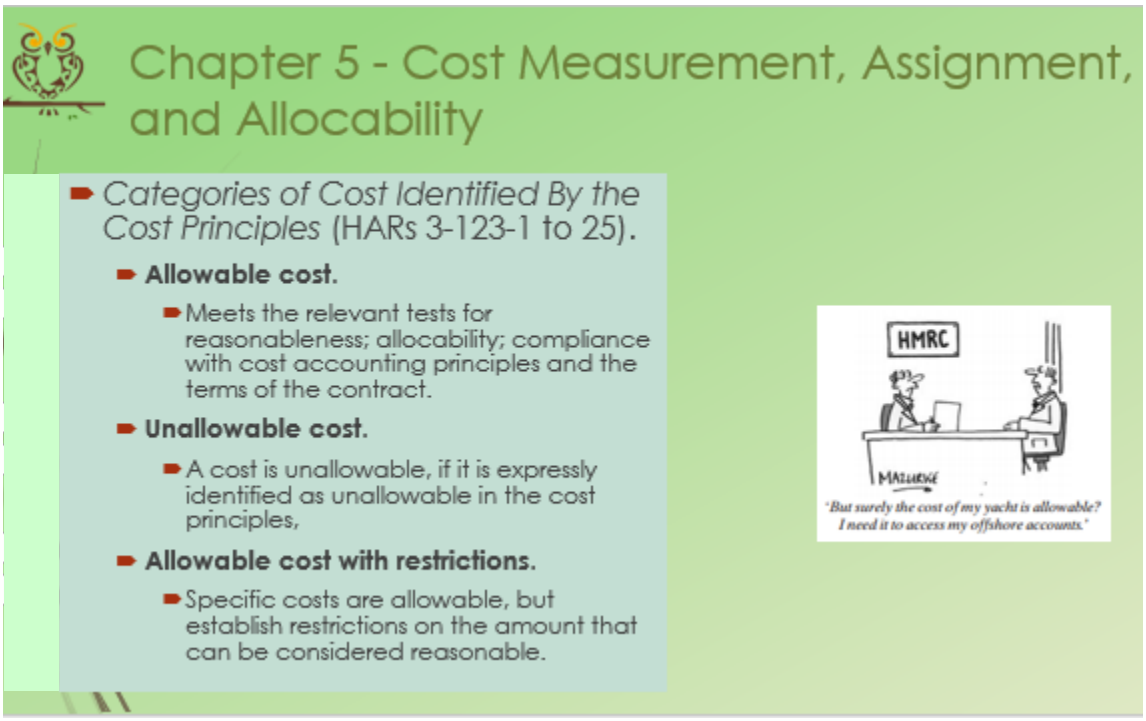
Combination Estimates. There is no one estimating method that is best in all situations. In fact, most cost proposals will include different estimates made using different methods. All three methods may be used in the same proposal. Different methods may even be used as a cross-check in estimating a single cost element.

For example: For a unique research and development contract, an offeror may use round-table estimates for many cost elements because similar research has never been conducted before. However, the offeror may also use comparison estimates for other cost elements based on the costs incurred under other research and development contracts.

Estimating Methods for Cost Analysis. Whenever you perform a cost analysis, you should always consider the strengths and weaknesses of the estimating method used by the offeror in preparing the proposal. Remember, that when you are preparing your negotiation objective, you are not limited to using the method used by the offeror in developing proposal. You can use any method that appears appropriate under the circumstances.

Estimating Method	Key Strengths and Weaknesses
Round-Table	**Strength:** Can be used with limited data. **Weakness:** Lack of data increases variability between estimators and true costs.
Comparison	**Strength:** Rapid development of estimates based on historical costs. **Weakness:** Estimates based on historical costs can project historical inefficiencies.
Detailed	**Strength:** Most accurate estimates. **Weakness:** Requires complete information that may be expensive or impossible to obtain.

CHAPTER 5: COST MEASUREMENT, ASSIGNMENT, AND ALLOCABILITY



- 5.1 – Cost Measurement, Assignment, and Allocability – Chapter Introduction
- 5.2 - Cost Measurement, Assignment, and Allocability
- 5.3 - CAS
- 5.4 - Identifying Allowability Factors to Consider
    - 5.4.1 - Identifying Factors That Affect Cost Reasonableness
    - 5.4.2 - Identifying Contract Terms That Affect Cost Allowability
- 5.5 - Determining the Allowability of Specific Costs

5.1 Chapter Introduction

Cost Allowability (HARs 3-123-1 to 25). While the total cost of a contract includes all costs properly allocable to the contract, the costs which the Government will pay are limited to those costs which are allowable.

Factors Affecting Cost Allowability. Consider the following factors in determining cost allowability:

- Reasonableness;
- Allocability (requires a cost to be properly measured, assigned, and allocated);
- Applicable accounting practices and standards;
- Applicable cost principles; and
- Terms of the contract.

As you make your determination on cost allowability, remember that to be allowable, a cost must be

properly measured, assigned, and allocated. A cost is first measured (how much is the cost), then assigned (to which cost accounting period should the cost be booked), and then allocated (how much of the cost should be assigned to each of the contracts being performed in the accounting period in which the cost is booked). Measurement, assignment, and allocation are determined using (1) HARs 3-123-1 to 25, and (2) Generally Accepted Accounting Principles.

5.2 Cost Measurement, Assignment, and Allocability

Generally Accepted Accounting Principles. Generally Accepted Accounting Principles (GAAP) are a set of uniform accounting rules for assignment and measurement (but not allocation) of costs that are used for recording and reporting financial data to accurately represent an organization's financial condition. They represent a body of accounting research, precedents, and standards of financial reporting that have evolved over the years.

These standards are endorsed by the Governmental Accounting Standards Board (GASB), and the Financial Accounting Standards Board (FASB), and their use is required by the Securities and Exchange Commission (SEC) for corporations under its jurisdiction. When the HRS and HARs are silent on how a cost should be measured and/or assigned, GAAP applies.

Typically, we think of cost objectives as individual contracts or jobs. However, cost objectives can also include special company projects, independent research, or items in a particular production lot.

For example: The following are examples of proper cost allocation:

- The cost of a component used to produce a particular product, should logically be charged to that product and only that product.
- The rent for a building used to produce several different products should be allocated to the various products produced in the building. Logically, the product that benefits the most from the building should bear the greatest share of the cost.

Questions to Consider in Determining Cost Allocability. There are three questions you should consider as you decide if a particular cost is properly allocated to a particular contract:

1. Were the costs specifically incurred for a single cost objective?

Yes: If the costs were incurred for one objective, then the costs should be assigned to that objective and NOT allocated to other non-benefiting objectives.

For example: A company proposes to allocate the cost of material used to complete a Government contract to that contract. That allocation appears acceptable because the cost objective that receives the benefit bears the cost.

No: If the costs were incurred for more than one objective, then they must be allocated to all benefiting objectives.

For example: A company proposes to allocate the cost of office supplies used throughout the company to a single Government contract. That allocation would shift a cost that should be borne by all contracts to a single contract.

2. Are costs that benefit the contract and other work allocated in reasonable proportion to the benefit received?

Yes: If the contract does benefit the contract and other work, the cost must be equitably allocated to

all benefiting cost objectives.

For example: A company allocates the cost of a technical word processing department by dividing the department operation cost by the number of pages produced during the year and then charging each cost objective based on the number of pages produced to support that objective. That allocation appears reasonable because costs are allocated to cost objectives based on the benefit received.

No: If the allocation is disproportionate, then too much cost is being allocated to some cost objective(s) and too little to other cost objective(s).

For example: A company has production equipment used relatively equally on all Government and commercial contracts. The company proposes to charge the entire cost of maintaining that equipment to Government contracts. That would not be a proper allocation of the cost, because Government contracts would bear the entire cost even though commercial contracts benefit equally.

3. Is the cost necessary to the overall operation of the business, although there is no direct relationship to any particular cost objective?

Yes: These expenses are commonly known as general & administrative expenses. If the costs are necessary for overall operation of the business, then it is assumed that they are of general (overall) benefit to all cost objectives.

For example: A company proposes to charge the salary of the chief executive officer's secretary to all operations, because the secretary is necessary to the operation of the firm. That appears to be a proper cost allocation because even though the secretary's activities may not benefit any particular product, they do support the overall operation of the firm.

No: If the cost does not benefit any specific cost objective and does not support the overall operation of the company, it should not be allocated to Government contracts.

For example: The company employs the president's son at a salary of $100,000 per year, but there is no evidence that he has performed any work that is of benefit to the company. This salary should not be allocated to any Government contracts, because it is not necessary for the overall operation of the company.

5.3 Identifying Allowability Factors to Consider

Pricing Decision. The factors affecting allowability can be complex and applying them to a contract situation requires careful judgment. For complex questions, you may need assistance from other members of the Government Procurement Team. Support from the cognizant Government auditor and technical experts can be particularly valuable.

However, remember that the procurement officer is ultimately responsible for evaluating price reasonableness and determining the level of analysis required to complete that evaluation.

5.3.1 - Identifying Factors That Affect Cost Reasonableness

Once a cost has been properly measured, assigned, and allocated, the specific allowability factors in HARs 3-123-1 to 25, Cost Principles, must be considered. One of the factors to consider is reasonableness. This section examines what you should consider in determining whether a proposed

or incurred contract cost is reasonable.

Defining a Reasonable Cost. A cost is reasonable if, in its nature and amount, it does not exceed what a prudent person would incur in the conduct of competitive business.

The underlying assumption in this definition is that a firm in a competitive business will minimize unnecessary costs in order to remain competitive. If a firm does not minimize unnecessary costs, then competitors will underbid the firm and take away market share.

You normally perform cost analysis in an environment where competition is inadequate for determining price reasonableness or cost realism. Therefore, the objective of cost analysis is to determine what the reasonable cost would be if the offeror were operating in a competitive environment.

Reasonableness of Incurred Costs. Both proposed costs and actual incurred costs are subject to the tests of reasonableness. The offeror must demonstrate the reasonableness of any incurred cost and cannot simply state that, because the expense has been incurred, it is automatically reasonable.

Questions to Consider in Determining Cost Reasonableness. There are four questions you should consider as you decide if a particular cost is reasonable. In some situations, your answers to these questions may lead you to other questions that you must answer before you can make a final decision on cost reasonableness.

1. Is the type of cost generally recognized as necessary in conducting business?

Yes: Then it meets this test of reasonableness.

For example: Payment of state and local franchise taxes is a necessary cost of conducting business.

No: If this is not necessary, it may be inappropriate for the contract.

For example: The purchase and up-keep of an ocean-going yacht for exclusive use of the company president is NOT a necessary cost of doing business.

2. Is the cost consistent with sound business practice, law, and regulation, and are purchases conducted on an "arm's-length" basis?

Yes: Then it meets this test of reasonableness.

For example: Construction of a waste treatment plant to comply with environmental standards is consistent with sound practice and the law.

No: If it is inconsistent with sound practice or violates law or regulation, then all or part of the cost is unreasonable.

For example: Paying a premium price for materials on a Government contract while receiving a bargain price of the same materials for use on a commercial contract under a "basket" purchase

deal is NOT consistent with sound business practice.

3. Does the offeror's action reflect a responsible attitude toward the Government, other customers, the owners of the business, the employees, and the public-at-large?

Yes: Then the cost meets this test of reasonableness.

For example: A good price analysis, and when necessary, cost analysis of supplier proposals prior to awarding purchase orders on Government cost-reimbursement contracts reflects a responsible attitude toward the use of taxpayer dollars.

No: If the offeror is acting irresponsibly, then some or all of the costs are probably unreasonable.

For example: Paying excessive salaries to executives and unconscionable retainers for retired executives as consultants does not demonstrate acting responsibly toward the owners of the business or its employees.

4. Are the offeror's actions consistent with established practices?

Yes: Then the costs meet this test of reasonableness.

For example: The offeror proposed to contract out source inspection of subcontractor parts. Company policy has always required inspection by corporate or subcontract inspectors. Cost will be lower and quality standards will be maintained by the proposed subcontractor. It would be reasonable to accept the proposed change.

No: If the offeror is deviating from established practices, then there is likelihood that the costs may be unreasonable.

For example: The contractor proposes to contract out redesign effort. Company policy and past practice has been to keep all design effort "in-house". Upon further review, you find that in-house resources are available, and the cost would be substantially lower than contracting out. It would be unreasonable to accept the proposed redesign cost.

5.3.2 Identifying Contract Terms That Affect Cost Allowability

Contract Terms and Cost Allowability. Specific types of cost are often addressed in a contract or request for proposal (RFP). For example, while product transportation costs are generally allowable, the contract may restrict "allowed" transportation costs to a specific mode (e.g., 3rd class mail).

However, the contract terms can only be more restrictive than the other factors that must be considered in determining cost allowability, not less. In other words, the contract terms cannot allow a cost that is:

- Not reasonable;
- Not properly measured, assigned and allocated to the contract;
- Not allowable in accordance with specific cost principles.

5.4 - Determining the Allowability of Specific Costs

Categories of Cost Identified By the Cost Principles (HARs 3-123-1 to 25). Each cost principle defines a particular type of cost and establishes whether it is allowable, unallowable, or allowable with some restrictions.

- Allowable cost. As you perform a cost analysis, a cost is allowable, if it is expressly identified as allowable in the cost principles, and it meets the relevant tests for reasonableness; allocability; compliance with cost accounting principles and the terms of the contract.
- **Unallowable cost**. Many cost principles identify specific types of cost as unallowable. When you perform a cost analysis, you must not allow any proposed or actual costs identified by the cost principles as unallowable.
- **Allowable cost with restrictions**. Many cost principles state that specific costs are allowable but establish restrictions on the amount that can be considered reasonable. When you perform a cost analysis, you cannot allow proposed or actual costs that exceed the limit set forth in the cost principle.

Consider all Relevant Cost Principles. For some costs, more than one cost principle may apply to your decision on cost reasonableness. In such cases, you must consider all relevant cost principles.

This second cost principle specifically states that the cost of participating in blood bank drives is allowable. Of course, the allowability of these costs is still subject to the tests of reasonableness, allocability, compliance with applicable accounting principles and standards and the terms and conditions of the contract.

Accounting for Unallowable Costs. Offeror/contractor accounting records must identify the following unallowable costs and exclude them from any billing, claim, or proposal applicable to a Government contract:

- Costs that are expressly unallowable or mutually agreed to be unallowable, and
- Directly associated costs that would not have been incurred if the above costs had not been incurred.

Offerors/contractors must also identify any costs (including directly associated costs) which a procurement officer has specifically disallowed in writing pursuant to contract disputes procedures if the costs have been included or used in the computation of any billing, claim, or proposal applicable to a Government contract. This identification requirement also applies to any costs incurred for the same purpose under like circumstances as the costs specifically identified as unallowable.

The practices used by the offeror/contractor in accounting for and presenting unallowable costs must comply with the requirements of HARs.

Directly Associated Costs. Any costs that would not have been incurred if an unallowable cost had not been incurred are known as directly associated costs and are also unallowable. For example, if the cost of a yacht is unallowable, the crew's salaries and related benefits are also unallowable.

Cost Principles Summary. The table below summarizes the cost guidance provided by the current cost principles. Note that a single cost principle may classify specific costs as allowable, other costs in the same general category as unallowable, and still others as allowable with restrictions.

Allowability Of Selected Costs Under HARs 3-123-1 to 25 **Selected Costs May Be Allowable (A), Unallowable (UA), or Allowable With Restrictions (AWR).**				
Selected Costs	HARs Ref.	A	UA	AWR
Advance Agreements	HAR 3-123-16			X
Advertising	HAR 3-123-5			X
Bad Debts	HAR 3-123-6		X	
Contingencies	HAR 3-123-7			X
Contributions, Donations or Gifts	HAR 3-123-11		X	
Depreciation	HAR 3-123-8			X
Entertainment Costs	HAR 3-123-9		X	
Fines, Penalties, & Mischarging Costs	HAR 3-123-10		X	X
Interest Expense	HAR 3-123-12		X	X
Losses on Other Contracts	HAR 3-123-13		X	
Material Costs	HAR 3-123-14	X		
Taxes	HAR 3-123-15			X

§3-123-16 Advance Agreements.

Costs requiring prior approval to be allowable as direct costs. The following costs shall be approved in advance in writing by the procurement officer. Advance agreements may be negotiated either before or during a contract but should be negotiated before incurrence of the costs involved. The agreements must be in writing, executed by both contracting parties, and incorporated into applicable current and future contracts. An advance agreement shall contain a statement of its applicability and duration.

(1) Pre-contract. These are incurred after contract award in anticipation of, and prior to, the notice to proceed, and are allowable to the extent that they would have been allowable if incurred after the date of the notice to proceed; provided that, in the case of a cost-reimbursement type contract, a special provision must be inserted in the contract setting forth the period of time and maximum amount of cost which will be covered as allowable pre-contract costs.

(2) Bid and proposal. Costs incurred in preparing, submitting, and supporting bids and proposals including proposals for the charges for change work within the scope of the contract and are specifically permitted by a provision of the contract or solicitation document.

(3) Insurance. Costs of obtaining insurance in connection with performance

of the contract or contributions to a reserve account for the purchase of self-insurance, but only the cost to the contractor to obtain similar insurance and is specifically required for the performance of the contract. Actual losses which should have been covered by permissible insurance or were expressly covered by self- insurance are unallowable unless the parties expressly agree otherwise in the terms of the contract.

(4) Litigation. Includes all filing fees, legal fees, expert witness fees, and all other costs involved in litigating claims before an administrative hearings officer or in court, except that costs incurred in litigation by or against the State are unallowable.

§3-123-5 Advertising.

The only allowable advertising costs are those for:

(1) Recruitment of personnel;
(2) Procurement of scarce items;
(3) Disposal of scrap or surplus material;
(4) Listing of a business's name and location in a classified directory; and

Other forms of advertising as approved by the head of the purchasing agency.

§3-123-6 Bad debts.

Bad debts include losses arising from uncollectable accounts and other claims, such as dishonored checks, uncollected employee advances, and related collection and legal costs. All bad debt costs are unallowable.

§3-123-7 Contingencies.

(a) Contingency costs are contributions to a reserve account for unforeseen costs and are unallowable except as provided in subsection (b).

(b) Contingencies that may arise from presently known and existing conditions, the effects of which are foreseeable within reasonable limits of accuracy; e.g., anticipated costs of rejects and defective work. Contingencies of this category are to be included in the estimates of future costs so as to provide the best estimate of performance cost. However, where contract clauses are present which serve to remove risks from the contractor, there shall not be included in the contract a contingency factor for such risks.

§3-123-8 Depreciation and use allowances.

(a) Depreciation and use allowances for fully depreciated assets, are allowable to compensate contractors for the use of buildings, capital improvements, and equipment or for the provision of such facilities on a standby basis for subsequent use when such facilities are temporarily idle because of suspensions or delays not caused by the contractor, not reasonably foreseeable, and not otherwise avoidable when the contract was awarded.

Depreciation is a method of allocating the acquisition cost of an asset to periods of its useful life. Useful life refers to the asset's period of economic usefulness in the particular contractor's operation as distinguished from its physical life. Use allowances provide compensation in lieu of depreciation or other equivalent costs.

Consequently, depreciation and use allowances may not be combined to compensate contractors for the use of any one type of property.

(b) The computation of depreciation or use allowances shall be based on

acquisition costs. When the acquisition costs are unknown, reasonable estimates may be used.

(c) Depreciation shall be computed using any generally accepted method, provided that the method is consistently applied and results in equitable charges considering the use of the property. The straight-line method of depreciation is preferred unless the circumstances warrant some other method. However, the State will accept any method which is accepted by the Internal Revenue Service.

(d) In order to compensate the contractor for use of depreciated, contractor-owned property which has been fully depreciated on the contractor's books and records and is being used in the performance of the contract, use allowances may be allowed as a cost of that contract. Use allowances are allowable, provided that they are computed in accordance with an established industry or government schedule or other method mutually agreed upon by the parties. If a schedule is not used, factors to consider in establishing the allowance are the original cost, remaining estimated useful life, the reasonable fair market value, and the effect of any increased maintenance or decreased efficiency. The cumulative use allowance for any item of property over the course of the project shall not exceed the actual market value of that item.

No depreciation or use allowance will be permitted for equipment, tools, or other items having a purchase price for that new item or equivalent of less than one thousand dollars.

§3-123-9 Entertainment.

(a) Entertainment costs are unallowable and include costs of amusements, social activities, and incidental costs as meals, beverages, lodging, transportation, and gratuities.

(b) Nothing herein shall make unallowable a legitimate expense for job related employee health, welfare, food service, or lodging costs; except that, where a net profit is generated by such services, it shall be treated as a credit as provided in section 3-123-21. Costs incurred for meetings or conferences, including, but not limited to, costs of food, rental facilities, and transportation are not allowable except where the primary purpose is the dissemination of technical information or the establishment of specific project policies, as a partnering conference.

§3-123-10 Fines and penalties.

Fines and penalties include all costs incurred as the result of violations of, or failure to comply with, federal, state, and local laws and regulations. Fines and penalties are unallowable costs unless incurred as a direct result of compliance with specific provisions of the contract or written instructions of the procurement officer. Costs incurred in connection with, or related to, the mischarging of costs on Government contracts are unallowable when the costs are caused by, or result from, alteration or destruction of records, or other false or improper charging or recording of costs. Such costs include those incurred to measure or otherwise determine the magnitude of the improper charging, and costs incurred to remedy or correct the mischarging, such as costs to rescreen and reconstruct records.

§3-123-13 Losses incurred under other contracts.

A loss incurred under one contract may not be charged to any other contract.

§3-123-14 Material costs.

(a) Material costs are allowable, subject to subsections (b) and (c). Material costs are the costs of all supplies, including raw materials, parts, and components (whether acquired by purchase from an outside source or acquired by transfer from any division, subsidiary, or affiliate under the common control of the contractor), which are acquired in order to perform the contract. In determining material costs, consideration shall be given to appropriate spoilage, appropriate inventory losses, and appropriate overages.

(b) Material costs shall include adjustments for all available discounts, refunds, rebates, and allowances which the contractor may take under the circumstances, and for credits for proceeds the contractor received or may receive from salvage and material returned to suppliers.

(c) Allowance for all materials transferred from any division including the division performing the contract, subsidiary, or affiliate under the common control of the contractor shall be made on the basis of costs incurred by the transferor, except the transfer may be made at the established price provided that the price of materials is not determined to be unreasonable by the procurement officer, the price is not higher than the transferor's current sales price to its most favored customer for a like quantity under similar payment and delivery conditions, and the price is established either:

(1) By the established catalogue price; or

(2) By the lowest price obtained as a result of competitive procurements conducted with other businesses that normally produce the item in similar quantities.

§3-123-15 Taxes.

(a) Except as limited in subsection (b), all allocable taxes which the contractor is required to pay, and which are paid and accrued in accordance with generally accepted accounting principles are allowable.

(b) The following costs are unallowable:

(1) Federal, state, and local income taxes;

(2) All taxes from which the contractor could have obtained an exemption, but failed to do so, except where the administrative cost of obtaining the exemption would have exceeded the tax savings realized from the exemption;

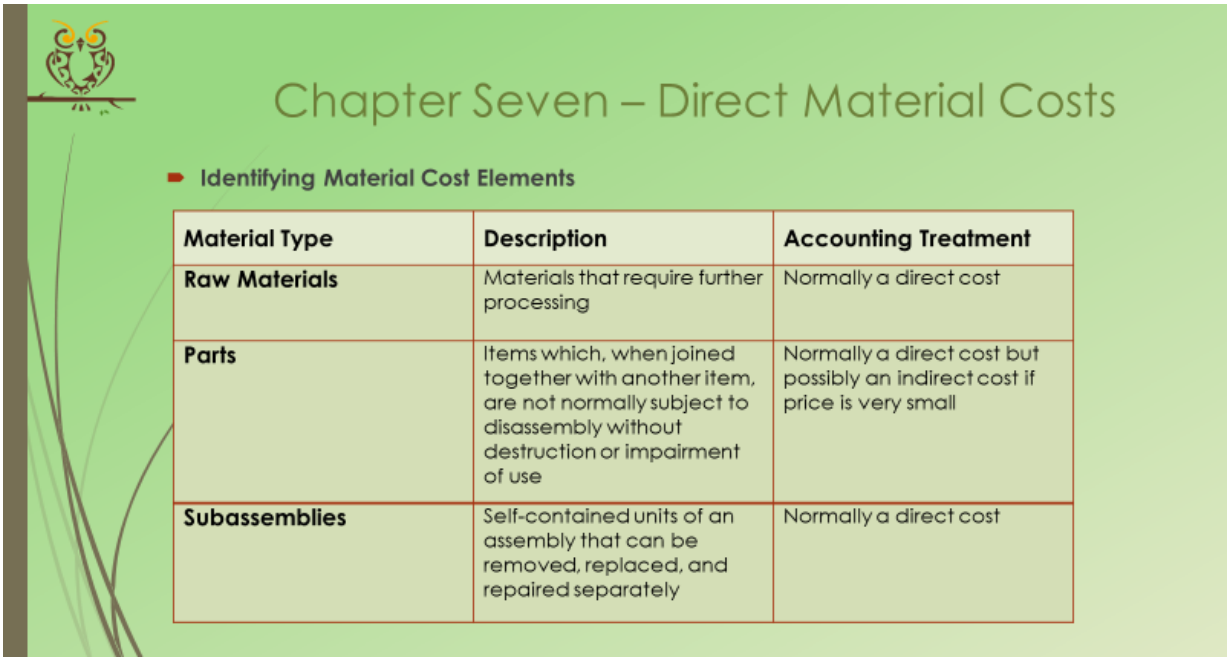
(3) Any interest, fines, or penalties paid on delinquent taxes unless incurred at the written direction of the procurement officer; and

(4) Income tax accruals designed to account for the tax effects of differences between taxable income and pretax income as reflected by the contractor's books of account and financial statements.

(c) Any refund of taxes which were allowed as a direct cost under the contract shall be credited to the contract. Any refund of taxes which were allowed as an indirect cost under a contract shall be credited to the indirect cost pool applicable to any contracts being priced or costs being reimbursed during the period in which the refund is made.

Direct government charges for services, such as water, or capital improvements, such as sidewalks, are not considered taxes and [are] allowable costs.

CHAPTER 6: DIRECT MATERIAL COSTS



- 6.1 – Direct Material Costs - Chapter Introduction
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    - 6.2.3 - Identifying Related Costs
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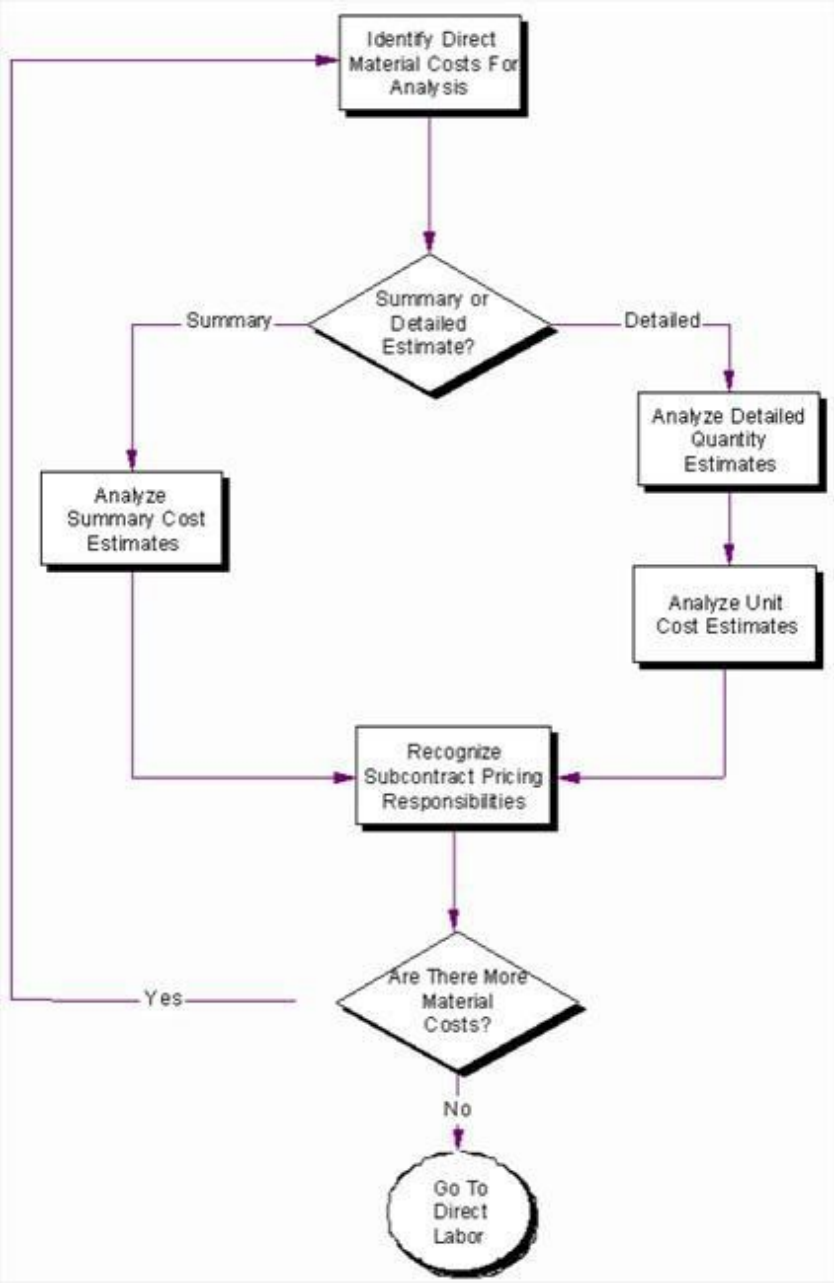
6.1 Chapter Introduction

Direct material costs often account for more than half of total contract cost. This chapter will present points to consider when you develop a pre-negotiation position on direct material costs.

Flowchart of Direct Material Costs Analysis:



6.2 Identifying Direct Material Costs For Analysis

This section will identify the types of costs that may be classified as direct material costs and points to consider in planning for further analysis.

- 6.2.1 - Identifying Material Cost Elements
- 6.2.2 - Identifying Collateral Costs
- 6.2.3 - Identifying Related Costs
- 6.2.4 - Planning For Further Analysis

6.2.1 Identifying Material Cost Elements

Material Cost. The cost of materials used to complete a contract normally includes more than just the cost of the materials that actually become part of the product. Costs typically include:

- Raw materials, parts, subassemblies, components, and manufacturing supplies that actually become part of the product;
- Collateral costs, such as freight and insurance; and
- Material that cannot be used for its intended purpose (e.g., overruns, spoilage, and defective parts).

Direct vs. Indirect Material Cost. Each firm is responsible for determining whether a specific cost will be charged as a direct cost or an indirect cost, and you will find that accounting and estimating treatment will vary from firm to firm. This section describes the general practices that you can use to identify direct material costs for analysis.

- **Direct Material Cost**. A direct material cost is any material cost that can be identified specifically with a final cost objective (e.g., a particular contract).
    - Material costs identified specifically with a particular contract are direct costs of the contract and must be charged to that contract.
    - Material costs must not be charged to a contract as a direct cost if other material costs incurred for the same purpose in like circumstances have been charged as an indirect cost to that contract or any other contract.
    - All material costs specifically identified with other contracts are direct costs for those contracts and must not be charged to another contract directly or indirectly.
- **Indirect Material Cost**. An indirect material cost is any material cost not directly identified with a single final cost objective but identified with two or more final cost objectives or an intermediate cost objective. For reasons of practicality, any **direct material cost of minor dollar amount** may be treated as an indirect cost if the accounting treatment:
    - Is consistently applied to all final objectives, and
    - Produces substantially the same results as treating the cost as a direct cost.

Accounting for Materials. The following table matches material types with their most common accounting treatment. This table is only a general guide. Proper accounting treatment will vary with different acquisition environments and the specific accounting guidance adopted by the firm.

Material Type*	Description	Accounting Treatment
Raw Materials	Materials that require further processing	Normally a direct cost
Parts	Items which, when joined together with another item, are not normally subject to disassembly without destruction or impairment of use	Normally a direct cost but possibly an indirect cost if price is very small

Subassemblies	Self-contained units of an assembly that can be removed, replaced, and repaired separately	Normally a direct cost
Components	Items which generally have the physical characteristics of relatively simple hardware items and which are listed in the specifications for an assembly,	Normally a direct cost
Manufacturing Supplies	Items of supply that are required by a manufacturing process or in support of manufacturing activities	Normally an indirect cost
* The material types in this table are drawn from Material Costs. The terms reflect a manufacturing orientation. When analyzing material costs proposed for services or construction, compare the proposed use of the materials with the definitions in this table for the most appropriate accounting treatment. Also, consider the general guidance offered on the previous page.		

6.2.2 Identifying Collateral Costs

Collateral Cost Accounting Treatment. Collateral costs are expenses associated with getting materials into the offeror's plant. Inbound transportation and intransit insurance are two common examples. These costs may either be treated as direct costs or indirect costs depending on the guidelines established by the firm. If they are treated as direct costs, they are normally tracked with the cost of the associated material item.

As you perform your cost analysis, make sure that the proposed treatment is consistent with the firm's treatment of similar costs under similar circumstances. Also make sure that the offeror is not charging twice for the same transportation and insurance cost.

For example: When an item is bought f.o.b. destination the price normally includes delivery to a point designated by the buyer. Unless some type of special handling is required, the buyer should not have any additional transportation or in-transit insurance costs.

Inbound Transportation. Inbound transportation cost, also known as freight-in expense, is the cost of transporting material to the place of contract performance. It may be the cost of transportation from the supplier's plant or some intermediate shipping point. This cost is allowable as long as it is reasonable but remember that this cost should be included in any price quoted f.o.b. destination.

Intransit Insurance. The intransit insurance expense related to material is the cost of insurance for inbound material. Any costs of insurance required or approved by the Government and maintained by the contractor under a Government contract are allowable. The most basic requirements are that the types and extent of insurance must follow sound business practice, and the rates and premiums must be reasonable.

6.2.3 Identifying Related Costs

Accounting for Related Materials. Identify estimates of excess materials that the offeror proposes to purchase to assure that sufficient material is available for production of the item. Estimates may include costs related to material overruns, scrap, spoilage, or defective parts.

- Some offerors will develop a single estimate which encompasses all of these costs. When a single estimate is used, it is usually referred to as scrap.
- Other offerors will develop separate estimates for several of the different types of excess material cost. When a firm develops separate estimates, make sure that each type of excess material cost is clearly defined and that the same costs do not appear in different estimates.

Estimates of these costs are usually developed using a cost estimating relationship (CER) -- a relationship between the cost and some independent variable related to a parameter of the item or service being acquired or a related contract cost. The proposal and related documentation must provide adequate analysis and statistical data to identify and support any CER used in estimating direct material cost.

Remember that material overruns, scrap, spoilage, or defective parts not used on the proposed contract will still have residual value. The offeror might use this material in producing other products or sell it for reclamation or reprocessing. As a result, the estimated contract cost must be adjusted to consider that residual value. The offeror might adjust the proposal by subtracting the estimated residual value from the estimated direct material cost. More commonly, offerors will estimate the residual value of such material for all contracts for the year and then subtract that estimated amount from an appropriate overhead account. Each contract proposal estimate is then reduced by use of the lower overhead rate.

Overruns. Simply stated, overruns are the purchase or production of more units than are required by the job.

For example: A minimum order quantity requirement is a common example. An assembly requires 25 units of a special fastener that can only be bought in quantities of 100. If the fastener can only be used on the one contract, you should expect to pay for all 100 units. On the other hand, if the fastener has general

application to other items produced by the firm, you should expect to only pay only for the units used on your contract.

Scrap. Scrap is material that is no longer usable for the purpose for which it was originally purchased.

For example: A casting may require machining prior to its use as part of a larger assembly. The material removed during the machining process is scrap. A sheet of metal may have a variety of shapes cut from it. The leftover pieces that are too small to cut into the required shapes are scrap.

Spoilage. There are many kinds of spoilage. Some of the more common types of spoilage are:

- **Shelf-life**. Shelf-life is the length of time some materials retain their usable properties while waiting to be used, after that time they must be discarded.

For example: Industrial silicon rubber compounds are used as coatings or adhesives in many manufacturing processes. If these compounds are not used within a certain time period (their shelf-life), they lose their usable properties and have to be discarded.

- **Losses**. Material losses are discrepancies between inventory records and physical inventory. Normally, these discrepancies are discovered during physical inventories. The inventory records indicate that the material is there, but an actual count finds that the material is no longer available. When inventory records indicate that the inventory includes more material than the physical count, the excess material must be removed from the inventory records or "written off."

For example: Lost materials may have been stolen, inadvertently discarded, or misplaced.

- **Obsolescence**. This can occur anytime there is a large inventory that will meet needs for a long period. Materials may become obsolete due to design changes that require new parts or materials, thus rendering the old inventory useless.

For example: Item specifications are changed. A production part is now obsolete because it is no longer needed for production.

Defective Parts. Defective parts are items that fail to meet required specifications. Depending on the severity of the defect, such parts can be scrapped, reworked, or "used as is." Defective parts are also known as "yield." Whether a defective part is usable as is, reworkable, or just scrap, there are costs associated with the action that must be considered in a cost estimating and analysis.

- **Scrap**. If the defective part cannot be used for its intended purpose or made usable, it will usually be charged as scrap.
- **Rework**. This is the process of taking the defective part and working on it again to correct the identified defects. If, after rework, the item meets specifications, it can be accepted. If the reworked item fails inspection again, it may be either reworked again or scrapped.

Rework cost is normally seen in labor expense. However, rework does help reduce scrap costs. Depending on the offeror's accounting system, the material used during rework may be accounted for separate from normal scrap.

- **Use as is**. This means that, while the part does not meet all contract requirements, the defect does not affect the part's ability to perform its intended function.

After a part has been properly examined and approved for use by the offeror's quality system, a "use as is" part, it can be incorporated into the end product. The costs associated with making the "use as is" decision are normally quality assurance labor and overhead. The value of the part is not affected unless a specific cost reduction is negotiated by the contractor and the Government.

6.2.4 Planning For Further Analysis

Points to Consider. As you prepare your plan for direct material cost analysis, look for indicators of uneconomical or inefficient practices. Material items with a large dollar value or unusual requirements normally rate in-depth analysis. If an element of proposed material cost appears suspicious, concentrate more analysis effort on that element than on a less suspicious cost element of similar dollar value. As you plan:

- Identify and evaluate the methodology used by the offeror to estimate direct material cost
- Identify any proposed direct material that does not appear necessary to the contract effort
- Identify any proposed direct material that should be classified as an indirect cost
- Identify any proposed direct material costs that merit special attention because of high-value or other reasons
- Assure that preliminary concerns about material cost estimates are well documented

Identify and Evaluate Estimating Methodology. To identify and evaluate the methodology used by the offeror to estimate direct material cost, ask questions such as the following:

- Is the estimate a summary-level or a detailed estimate?

In a summary estimate, material cost is estimated on a total-cost basis without the benefit of a detailed cost breakdown of material units and cost per unit. In a detailed-level estimate, material cost is estimated based on estimates of the number of material units required and the cost per unit.

- Does the methodology appear appropriate for the current estimating situation?

The method selected should use the information available to produce reasonable and equitable results. If the methodology used by the offeror does not appear appropriate, consider using a different methodology to develop your pricing position.

- Is the estimating methodology consistent with estimating assumptions?

If any part of the estimate is not consistent with stated estimating assumptions, question the costs involved.

Identify Apparently Unnecessary Material Cost. To identify any proposed direct material that does not appear necessary to the contract effort, ask questions such as the following:

- Is the material necessary?

The reasons for any direct material not obviously required for contract performance should be clearly described in the proposal.

- Should the item be purchased, not made (or vice versa)?

Mark any item where the make-or-buy decision does not appear to result in the best value to the Government. There may be good reasons why such a decision will produce the best value to the Government, but the decision may also represent an attempt by the offeror to gain advantage at Government expense (e.g., gain capability in new technology currently available from potential subcontractors at a lower total contract cost).

- Can less expensive material be substituted, in whole or in part?

Sometimes, proposed material may be over specified (i.e. excessively tight tolerances). Consider using value engineering techniques to identify less expensive parts (e.g., a commercial part might be available to replace a part made to unique Government requirements).

- Is the material acceptable under terms of the contract?

If the contract requires new materials, or material certifications in accordance with specifications or standards, then the proposed materials must meet those requirements.

Identify Any Material That Should be Indirect. To identify any proposed direct material that should be classified as an indirect cost, ask questions such as the following:

- Has the offeror consistently treated material similar to the proposed material as direct material?

If similar material has been treated as an indirect cost under similar circumstances, proposed material should likely also be an indirect cost. If the offeror classifies similar material as a direct cost in one situation and as an indirect cost in a similar situation, there is a good chance that you are being double charged -- once as a direct cost and a second time as an indirect cost! If in doubt, contact the cognizant Government auditor for assistance.

Identify Material Costs Which Merit Special Attention. To identify any proposed direct material costs that merit special attention because of high-value or other reasons, ask questions such as the following:

- Is any material estimate a large portion of the entire material cost estimate?

Many times a single estimate will be a large part of the entire estimate. That estimate will normally merit special attention because of the dollars involved.

- Is any material uniquely critical to contract performance?

Many times a specific material item is essential for contract performance. Related estimates may merit special attention, because the offeror may be willing to pay "any price" for the material.

Document Material Cost Concerns. To assure that preliminary concerns about material cost estimates are well documented, ask questions such as the following:

- Have you identified material estimates that merit special attention?

If the answer is "yes" document the areas of concern for reference as you perform more in-depth analysis.

- Has the offeror had an opportunity to answer your concerns?

Consider raising these concerns in fact-finding conversations with the offeror. If the problem is an error in the proposal, bring the error to the offeror's attention so that it can be corrected prior to formal negotiations.

6.3 Analyzing Summary Cost Estimates

Steps for Summary Estimate Analysis. In a summary material cost estimate, material cost is estimated on a total cost basis without the benefit of a detailed cost breakdown of units and cost per unit. Summary estimates may be round-table or comparison estimates. Round-table estimates commonly use words such as "engineering estimate" or "professional judgment." Comparison estimates involve the use of some form of comparison based on data from efforts completed or in progress.

As you conduct your analysis of summary direct material cost estimates:

- Give special attention to any direct material concerns identified during your preliminary review of the material mix.
- Determine whether use of summary cost estimates is appropriate for the estimating situation.
- Determine which summary estimating technique(s) was used in proposal development.
- Determine if cost estimating relationships (CERs) used in the proposal were properly developed and applied.
- Determine if direct comparisons used in the proposal have been properly developed and applied.
- Develop and document your prenegotiation position on direct material cost.

Determine If Summary Estimates Are Appropriate. To determine whether the use of a summary cost estimate is appropriate for the estimating situation, ask questions such as the following:

- Does the item cost warrant the expense of a detailed estimate?

The time and effort put into an analysis needs to be commensurate with the cost of the material involved. As the dollars and percentage of total cost increase, emphasis on obtaining a detailed estimate should also increase.

- Do the cost accounting data provide a clear history?

If detailed cost data do not provide a clear material cost history, then summary estimating techniques may be the most viable alternative.

- Would the summary-level analysis be as accurate as a detailed analysis?

If the summary-level estimate is as good as a detailed analysis, then it is more cost effective to use the less costly summary analysis.

Determine *Which* Summary Estimating Technique Was Used. To determine which summary estimating techniques were used in proposal development, ask questions such as the following:

- Has the offeror estimated direct material cost using a cost estimating relationship (CER)?

Estimators can use a CER to estimate costs based on an established relationship between the cost and some independent variable. The independent variable may be a parameter of the item or service being acquired (e.g., item size or speed), or another contract cost (e.g., direct labor cost).

For example: An offeror might use a CER to estimate material cost for a research and development (R&D) contract. Since the purpose of an R&D contract is to learn about the unknown, there is likely no firm list of material requirements to use as a basis for estimate development. However, it may be possible to develop a CER based on the relationship between material cost and a related independent variable (e.g., material cost per direct labor dollar or material cost per direct labor hour). Of course, the offeror should clearly document development and use of the CER.

- Has the offeror estimated direct material cost using a direct comparison with the cost of a similar contract effort?

A direct comparison is just that, a comparison with the cost of a similar contract effort. The similar effort could be a contract or contracts for the same product or a similar product. The assumption is that contracts with similar material requirements will have similar material costs. If this assumption is valid, the estimator can use the historical cost to estimate the cost of the new contract. When preparing the

estimate, the estimator should consider the need to adjust historical costs for differences in the acquisition situation (e.g., changing value of the dollar, labor improvement, and differences in work complexity). The proposal should clearly document the similarity in material requirements and the rationale for any adjustments required to compensate for differences in the acquisition situation.

Determine If CERs Were Properly Developed and Applied. To determine if cost estimating relationships (CERs) used in the proposal were properly developed and applied, ask questions related to the issues and concerns associated with CER development.

- Does the available information verify the existence and accuracy of the proposed relationship?
- Is there any trend in the relationship?
- Is the CER used consistently?
- Has the CER been consistently accurate in the past? How current is the CER?
- Would another independent variable be better for developing and applying a CER?
- Is the CER a self-fulfilling prophecy?
- Would use of a detailed estimate or direct cost comparison with actuals from a prior effort produce more accurate results?
- Does the CER estimate consider the changing value of the dollar?

Determine If Direct Comparisons Were Properly Developed and Applied. To determine if direct comparisons used in the proposal have been properly developed and applied, ask the following questions:

- Is the basic nature of the new contract effort similar enough to the historical effort to make a valid comparison?
- Does data analysis consider the changing value of the dollar?
- Were there significant cost problems or inefficiencies in the historical effort that would distort the estimate on the new effort?
- Have there been significant changes in technology or methods that would distort the estimate on the new effort?
- If the historical costs have been adjusted in any way, are the adjustments reasonable?
- Are there any significant differences in the material mix between the two efforts?
- Did the offeror assume any improvement from historical effort to the current effort? If not, why not? If so, does the estimate properly consider improvement curve theory?

Develop and Document Your Prenegotiation Position. As you develop and document your prenegotiation position on direct material cost:

- If you accept the offeror's summary estimate, document that acceptance.
- If you do not accept the summary estimate, document your concerns with the estimate and develop your own prenegotiation position for costs covered by the estimate.
- If you can identify information that would permit you to perform a more accurate analysis of material costs, use the available information. Your analysis is not bound by the estimating methods used by the offeror.

6.4 Analyzing Detailed Quantity Estimates

Detailed Direct Material Cost Estimates. A detailed cost estimate is more costly to develop and analyze than a summary estimate. However, when properly completed, the accuracy of a detailed estimate should compensate for the additional cost.

To prepare a detailed direct material cost estimate the estimator must first prepare an estimate of the material quantities required to complete the contract and then estimate the unit price for that material. Estimated material quantities will include the material that will become part of the product and any additional material required to compensate for material overruns, scrap, spoilage, and defective parts. Estimated prices must consider the total quantities required.

Bill of Materials. A bill of materials is a listing of all the materials, including the part numbers and quantities of all the parts required to complete the contract. When the contract is complex, there may be individual bills of material for different contract tasks or line items. If the estimate includes more than one task or item bill of materials, the offeror must submit a consolidated bill of materials for all items, with a breakdown suitable for analysis. The estimate must identify the item, the source, the quantity, and the price.

For supply and construction contracts, the estimator should estimate base material requirements for the bill of materials using contract drawings and specifications. Estimates of additional material requirements to compensate for material overruns, scrap, spoilage, and defective parts should be based on offeror experience and contract requirements.

Service contracts may not include drawings and specifications, but direct material quantity estimates will still be based on an analysis of contract requirements and offeror experience. These quantity estimates may be based on a detailed analysis of contract requirements or on comparisons with the material quantities actually required to complete similar contracts.

The table below presents an example of a priced consolidated bill of materials to produce 500 units of a product.

Part Number	Item and Source Information	Quantity per Assembly	Scrap Factor	Total Quantity	Unit Price	Total Price
9876543	Housing casting. (Vendor: PIC Corp. PO 351522, issued 12/20, competitive)	1	4%	520 ea.	$84.72	**$44,054.40**
9876542	Bearing. (Vendor: Sun Co. PO 351480, issued 12/5,	2	12%	1120 ea.	$14.87	**$16,654.40**
9876541	Gear, 14 tooth. (Vendor: AUTOCO, Competitive)	4	8%	2160 ea.	$4.18	**$9,028.80**
9876540	Cable Assembly (Vendor: Rockway Corp., noncompetitive)	1	4%	520 ea.	$328.00	**$170,560.00**
9876539	Bracket, main. (Vendor: Cee Cee Corp., prior price was $22.19 ea. (PO 41110) 8% added in making estimate, two years since last buy)	3	1%	1515 ea.	$23.97	**$36,314.55**

9876538	Race assembly. (Similar item bought 5/25 from HUP, Inc. for $150 ea. Engineering estimates that new item will cost 1/3 more)	1	2%	510 ea.	$200.00	**$102,000.00**
9876537	Solenoid. (Engineering estimate)	1	3%	515 ea.	$90.00	**$46,350.00**
9876536	Gear, drive. (Engineering estimate)	1	3%	515 ea.	$24.00	**$12,360.00**
Total Material						**$437,322.15**

Points to Consider When Analyzing Detailed Quantity Estimates. As you conduct your analysis of detailed direct material quantity estimates:

- Give special attention to any direct material quantity concerns identified during your preliminary review of the material mix.
- Select a sampling strategy for analysis.
- Determine the reasonableness of the base estimate of direct material quantities required to complete the contract.
- Determine the reasonableness of any adjustments to the base estimate of direct material quantities required to complete the contract.
- Develop and document your prenegotiation position on direct material quantities required to complete the contract.

Sampling Strategy for Analysis. If the proposal includes only a few material items, you may have time to review all bill of materials items. For larger proposals with more items, you will probably need to limit your review to an item sample.

Consider using stratified sampling procedures that permit you to give more attention to high-value items, but still consider all bill of materials items. You can then adjust item estimates based on analysis results. A reduction to proposed costs is commonly called a **decrement**, and the percentage adjustment a **decrement factor**.

For example: You draw a sample from all material items with an extended cost of $1,000 or less. In analyzing that sample, you find that the sampled items are overpriced by five percent. The proposed cost of all items in the sampled stratum ($1,000 or less) should be reduced by five percent. The reduction is referred to as a decrement and the five percent is a decrement factor.

Determine the Reasonableness of the Base Estimate. The base quantity estimate is the quantity of material that will actually be used in the final product. Technical personnel should be able to verify this quantity by comparison with drawings and other relevant contract requirements.

Determine the Reasonableness of Any Adjustments. The actual direct material required to produce a product will likely exceed the material that will be included in the product. The reasons for this difference typically include material overruns, scrap, spoilage, and defective parts. All these costs are normally estimated using cost estimating relationships (CERs) based on the base estimates of direct material required to produce the product. Your analysis should center on assuring that the estimate is

reasonable.

Occasionally, a quantity adjustment is necessary to account for a minimum buy requirement. That is, the quantity required by the contract is less than the minimum quantity made available for purchase by the supplier. The minimum buy quantity can typically be verified by reviewing the supplier's quote. You may also assess the likelihood of another contract requiring the excess material, either on the acquisition date or at a later time through inventory. You should consider whether the adjustment should be reduced by the quantity expected to be used by the other contract(s).

In the bill of materials example above, examine the estimate for Part Number 9876543. A total of 520 parts must be purchased to complete assemblies requiring 500 parts. The additional 20 parts are estimated to be scrap.

Adjustment factors are normally based on accounting data and statistical analysis or other relevant experience. The most common method of calculation is a moving average, incorporating 6 to 12 months of data.

For example: CERs used to estimate the cost of scrap may be calculated using either dollars or units of material and are commonly calculated in one of the following ways:

Scrap Dollars or	Scrap Units
Total Assembly Material Dollars	Total Assembly Material Units

Scrap Dollars or	Scrap Units
Material Dollars Purchased	Material Units Purchased

As you analyze any adjustments to the base bill of materials quantities, consider the answers to the following questions:

- If a CER (e.g., a scrap factor) is used to estimate adjustments, did the offeror consider the issues and concerns associated with CER development?

Quantitative Techniques for Contract Pricing (Volume II) identifies a series of questions related to issues and concerns that you should consider when evaluating any CER.

- Do you know what types of material costs are covered by the CER?

Material costs estimated using a CER must not duplicate material costs estimated using some other method. A CER developed to estimate the cost of scrap for electronic components should normally not be used to estimate the cost of scrap for metal components.

- Is the method used to apply the CER in the estimate consistent with the method used in rate calculation?

The independent variable used as a base for applying the CER (e.g., total assembly material dollars) must be the same as the base used to calculate the CER and the value of the independent variable must be calculated using the same procedures used in CER development.

- Does related estimate information indicate that the additional material amounts are consistent with past experience?

A CER or another method of adjustment may produce results that do not appear reasonable based on past experience. In such situations, consider the need for further analysis.

- Are the materials, tolerances, and processes similar to those used to calculate the CER?

Note that different items in the consolidated bill of materials example above have different scrap

rates.

Some materials tend to produce more scrap than others in similar processes. Tighter tolerances tend to produce more scrap. Different processes produce different rates of scrap.

- Are the data used to calculate the CER changing over time?

Experience with the same material and processes should reduce scrap rates. Many CERs that are used to estimate additional material requirements are developed using moving averages to smooth variations in the data. A longer moving average (e.g., 12 months) may mask improvement. A shorter (e.g., 6 months) moving average will react faster to improvement but may overreact to a random change in the data.

- Is the amount of the adjustment for material overruns, scrap, spoilage, and defective parts reasonable from a should-cost viewpoint?

The CER may be based on history, but does that history represent efficient and effective operations. Consider these related questions:

- Are potential process improvements that would reduce material cost considered by this adjustment?
- Would a different type, size, or shape of material reduce the need for this adjustment?
- What is the offeror doing to reduce the need for this adjustment?
- Does the proposal consider the residual value of the material overruns, scrap, spoilage, and defective parts?

Material that cannot be used for its intended purpose is probably not worthless, and the offeror must consider that residual value in the proposal. Depending on the offeror's accounting methods, this residual value may be credited directly to the contract or credited through an appropriate overhead rate reduction.

Develop and Document Your Prenegotiation Position. As you develop and document your prenegotiation position on direct material quantities, consider the following:

- If you accept the offeror's quantity estimate, document that acceptance.
- If you do not accept the quantity estimate, document your concerns with the estimate and develop your own prenegotiation position for direct material costs covered by the estimate.
- If you can identify information that would permit you to perform a more accurate analysis of material costs, use the available information. Your analysis is not bound by the estimating methods used by the offeror.

6.5 Analyzing Unit Cost Estimates

Points to Consider When Analyzing Unit Cost Estimates. After you have established the quantity of material required to complete the contract, you must analyze the proposed unit costs. As you conduct your analysis:

- Give special attention to any direct material unit cost concerns identified during your preliminary review of the material mix.
- Determine if the offeror used an appropriate base for estimating unit material costs.
- Determine the reasonableness of material unit cost estimates based on current quotes.
- Determine the reasonableness of material unit cost estimates based on historical quotes or purchase prices.

- Determine the reasonableness of material unit cost estimates based on inventory pricing.
- Determine the reasonableness of interorganizational transfers.
- Develop and document your prenegotiation position on unit costs for direct materials.

Determine Appropriateness of Estimating Bases. There are three general bases commonly used for estimating direct material unit prices for future contract performance. Use the following table as you

Use estimates based on:	When the following conditions exist:
Current Quotes	Work will be performed using materials not currently in inventory; Material prices may vary significantly from current inventory values; There is sufficient lead time to acquire materials being estimated; and There is sufficient proposal preparation time for the offeror to solicit and receive vendor quotes.
Historical Quotes or Purchase Prices	Work will be performed using materials not currently in inventory; Price changes (or lack of changes) between price history and contract performance are relatively predictable; and There is sufficient lead time to acquire materials being estimated. (Note: This method is particularly appropriate when there is insufficient proposal preparation)
Inventory Pricing	Work will be performed by using materials in the existing inventory.

determine whether the base used by the offeror is appropriate under the circumstances.

Analyzing Current Quotes. As you evaluate the reasonableness of material unit cost estimates based on current quotes, consider the answers to the following questions:

- Are the quotes for quantities required to complete the contract?

Make sure the vendor quotations match the quantities necessary for the proposed work. For example, if 1,000 units of a part are needed, the quote should be based on 1,000 units. If the offeror is proposing to make five purchases of 200 units, the units are likely to be overpriced, because larger quantity purchases usually mean lower unit prices.

Exceptions. There are two general exceptions to this rule.

- If the items being estimated are used on more than one contract, quantities for all parts required during the time period should be combined in order to obtain the best possible prices through quantity purchasing.
- If the increased cost of holding the product exceeds the potential savings from quantity procurement. Then the contractor may be able to justify buying the product in smaller lots at different times in the production process.
- Did the proposal consider probable negotiated price reductions?

If the offeror has a history of negotiating reductions from subcontract price quotes, the proposed material price should reflect the historical proposal reduction (decrement). Even when multiple prospective subcontractors have submitted "competitive quotes," be on the lookout for purchase orders placed at prices less than the quote.

Most contractors will try to negotiate reductions even with competitive quotes. Techniques the offeror may employ to reduce quoted prices include: asking vendors for another round of best and final offers; continuing negotiations; switching to a lower priced vendor; and increasing order quantities to gain quantity discounts.

If the proposal did not consider negotiated price reductions, consider developing your own decrement factor. For example, if history shows that the offeror commonly negotiates prices five percent below the prices subcontractors propose, you could use a five percent decrement factor to consider the anticipated reduction.

- Did the proposal properly consider subcontract terms and conditions?

Sometimes, special conditions in the business arrangements between the offeror and vendor result in savings to the offeror. These savings should be passed on to the Government. Some examples include:

- **Quotations with escalation already included.** Sometimes the offeror will ask a vendor to quote prices for orders placed over an extended period of time. The vendor will most likely include some escalation in the price for cost increases. While this is acceptable, it would be unacceptable for the offeror to add an additional escalation factor to a vendor quote that already includes escalation for the same period of time.
- **Quantity discount rebates**. Occasionally, you may see an arrangement where the vendor will charge a set price on each individual order and at the end of the year offer a rebate based on the total quantity purchased. If the Government pays the individual order price, the contractor could realize excessive profits through the rebate. The offeror should project the estimated quantity for the year and discount the current quote considering the estimated amount of the rebate or use the estimated rebate to reduce any indirect cost related to material.
- **Prompt Payment and Other Discounts.** Suppliers some times offer a discount for prompt payment or other trade discount or credit. Typically, such discounts are identified on the supplier's quote. These discounts may be accounted for either by reducing the material estimate directly or by crediting indirect costs. If a discount is available and the contractor declines to participate, the contractor should demonstrate that doing so is reasonable.
- **Priced options**. While the offeror may propose a current quote, there may be an existing order with a priced option for additional quantities at a price lower than the current quote. The price the offeror really expects to pay the vendor is the lower priced option price, and that is the price that should be used to estimate direct material cost.
- Has the prime contractor completed subcontract negotiations?

You will likely find it harder to negotiate price reductions after the offeror has agreed to a subcontract price. However, if the subcontract has been negotiated, do not accept a subcontract cost that you believe is unreasonable just because the price has been negotiated.

- Will some (or all) of the contract material come from existing inventory?

Determine if the offeror will purchase the entire quantity or if some of it will come from existing inventory.

Remember that the inventory value may be less than the current market price.

- Are there any other significant price-related factors that should be considered in estimating direct material unit cost?

Determine what price-related factors are built into (or excluded from) the material quotes. For example, if a quote includes surface transportation cost to the prime's plant, do not accept additional surface transportation cost estimates for that material.

- What is the nature and adequacy of the subcontract price competition?

In your evaluation of subcontract competition, ask the same questions about the existence and adequacy of price competition that you would ask in evaluating offers for a Government contract. If the number of competitive quotes is less than expected, inquire as to how many potential suppliers were asked to provide a quote. Solicitation responses are not always received promptly. Consider that a lower priced quote may have been submitted after the proposal was developed. In evaluating the extent of competition, you should also consider the effect of any common ownership arrangements, either between the contractor and subcontractor or between any of the solicited subcontractors.

- How do quotes compare with commercial prices, historical prices, pricing yardsticks, or Independent Government Estimates?

Be wary of subcontract quotes that are substantially different than commercial prices, historical prices, pricing yardsticks, or Independent Government Estimates. Ask the offeror to explain the differences, and, in light of those differences, justify the reasonableness of the quoted prices.

Analyzing Historical Quotes or Purchase Prices. As you evaluate the reasonableness of material unit cost estimates based on current quotes, consider the answers to the following questions:

- Was the historical quote or subcontract price reasonable?

Be cautious as you review material unit cost estimates based on vendor quotes or contract prices paid by the prime contractor. Such estimates assume that the historical price was reasonable. That may not be true. If you have questions, review the offeror's subcontract files and related market information.

- Are there other historical quotes or subcontract prices that support or refute the reasonableness of the estimated price?

Verify that the subcontract price quote used by the offeror is not unusually high (or unusually low) for the quantity required. For example, the most recent purchase may have been at a relatively higher unit price because the contractor acquired an unusually low quantity.

- Are current material item requirements the same as the historical requirements?

Changes in specifications can affect material prices. If a particular process, inspection, or specification has been eliminated, the cost of producing the item will most likely drop. If this circumstance exists, the historical price must be adjusted accordingly.

- How has the offeror's specific purchasing situation changed?

You need to understand the contractor's acquisition situation as it existed in the previous purchase and how the current acquisition situation differs. As a minimum, you should consider the probable effect of changes in:

- Number of sources;
- Quality of sources and competition;
- Quantities purchased;
- Production / delivery rates;
- Start-up costs; and
- Terms of purchase.

- Has the item's production status changed?

Item prices typically decrease when a part is in continuous production. If the item was in continuous production, but is no longer produced, the vendor may incur start-up costs to begin manufacturing the item again. If an item's production status has changed, the estimator should either adjust historical prices to consider start-up costs and related inefficiencies or use another base to estimate direct material cost.

Remember that the opposite situation can also occur. If the last purchase included nonrecurring costs (e.g., tooling, set-up, or first article expenses) that should not be charged again. The cost of the current item should reflect only recurring production costs.

- How has the general economic situation changed?

Economic changes are reflected in the general level of inflation or deflation related to the material item. Price index numbers can be invaluable to you in analyzing price changes.

- Has the contractor applied an escalation factor?

It is not always practical for a contractor to purchase and accept delivery of all required material early in the contract performance period. In these cases, multiple purchases of direct material may be made throughout contract performance and the purchase price may vary. Therefore, a contractor may apply an escalation factor to historical material costs to estimate the anticipated purchase price. Generally, material prices increase over time, but this is not always true, particularly with some hi-tech component parts where obsolescence is rapid.

In evaluating the reasonableness of proposed escalation, you should consider the time-phased schedule of material requirements, the validity period of the supplier's quoted price, actual historical price fluctuation of the material, management-approved plans, and forecasted economic conditions.

- Is there more recent pricing information available?

Be alert to possible discrepancies between estimating system information and the purchasing system information. The offeror should always provide you with the most up-to-date information. However, if the firm's estimators do not communicate effectively with the firm's buyers, the estimators may still be relying on historical costs even though the firm's buyers have obtained current quotes and prices.

Analyzing Inventory Pricing. When the firm intends to use existing inventory to perform the contract, the direct material estimate should be based on one of the five acceptable methods of inventory pricing: first-in-first-out, last-in-first-out, weighted average, moving average, and standard cost. As you evaluate the reasonableness of material unit cost estimates based on inventory pricing, consider whether the offeror consistently uses one (and only one) of those acceptable methods.

- **First-in-first-out (FIFO)**. This method of inventory pricing works just as the name implies. For accounting purposes, you assume that the first unit into the inventory is the first unit to be drawn out. The inventory value assigned to the unit drawn out is the value of the first unit recorded as still being in inventory. It does not matter which unit is physically drawn out of inventory. It could actually be the last unit added to inventory. Under FIFO, the value assigned would still be that of the first unit recorded as being on-hand.

For example: A firm using FIFO has five widgets in inventory. The following are the acquisition costs in order of receipt:

Unit A @ $100

Unit B @ $110 Unit C

@ $105 Unit D @

$115

Unit E @ $120

During the year, the firm performs three jobs requiring one widget each. Direct material costs for each job would be:

Job 1 cost

= $100

Job 2 cost

= $110

Job 3 cost

= $105

Unit D @

$115 Unit

E @ $120

The remaining inventory value would be $235 ($115 + $120).

- **Last-in-first-out (LIFO)**. As with FIFO, LIFO is what the name implies. Pricing is based on the assumption that the last, or most recent unit received, will be the first drawn out. Using the same situation as above, but with LIFO, you would get the following:

For example: A firm using LIFO with the following five widgets in inventory and three jobs requiring one widget each would have the direct material cost indicated for each job:

Unit A @

$100 Unit

B @ $110

Job 3 cost

= $105

Job 2 cost

= $115

Job 1 cost

= $120

The remaining inventory value would be $210 ($100 + $110).

- **Weighted Average**. Under this method inventory unit prices are recalculated at designated times during the year (e.g., quarterly). The weighted average is calculated by dividing the total cost of the inventory on-hand by the number of units on-hand.

For example: A firm using the weighted average method of inventory pricing with the five widgets below in inventory and three jobs requiring one widget each would have a direct material cost of $110 for each job.

Unit A @ $100 Job 1 cost

= $110 Unit B @ $110 Job

2 cost = $110 Unit C @

$105 Job 3 cost = $110

Unit D @ $115

Unit E @ $120

Total $550 for five units

The inventory price for each widget would be the weighted average $110 ($550/5). Note: In this example, the weighted average price is the same as the simple average price because there is only one

unit at each unit price.

The remaining inventory value would be $220 ($110 x 2).

- Moving average. A moving average is calculated in the same way as a weighted average except that the calculation is done every time there is a new addition to inventory.

For example: Five widgets listed in the Original Inventory below are in inventory. During the year, three jobs were performed requiring one widget each. After the completion of Job 1, an additional unit was added to inventory, and inventory prices recalculated.

Original Inventory:

Unit A @ $100 Job 1 cost

= $110 Unit B @ $110

Unit C @ $105

Unit D @ $115 Unit E

@ $120 Total $550 for

five units

The inventory price for each of the original five widgets would be the weighted average $110

($550/5). Inventory after Completion of Job 1 and addition of Unit F:

4 Units @ $110 = $440 Job 2 cost

= $112 Unit F @ $120 = $120 Job

3 cost = $112

$560

The new moving average price would be $112 ($560/5).

The remaining inventory value would be $336 ($112 x

3).

- **Standard cost**. Under this method of inventory pricing, the value of inventory equals the number of units times the unit standard cost. Standard costs are usually based either on expected prices for the period in question (sometimes as short as a week) or on prices prevailing at the time the standards are set. Standard costs do not change in response to short-term fluctuations in volume, quantity, or unit costs.

The difference between the acquisition cost and standard cost of inventory units is called a variance. Variance adjustments may be handled by making cost adjustments on each job, or if the cost is insignificant, it can be done as an overhead adjustment. If the variance is absorbed in overhead, determine that the same standards are used by all contracts, particularly commercial and government. In addition, verify that the material requirements are roughly identical between commercial and government contracts. If commercial requirements differ, assess the risk that standards have been set artificially low for the material associated with commercial contracting. Low standards create higher variance costs, which are then allocated through the overhead adjustment to all contracts.

There may be substantial differences between contractor inventory standard cost systems. If you encounter an inventory standard cost system, ask the contractor to identify the source of the applied standards and to explain any variances. Where possible, contact the cognizant Government auditor for assistance.

Inter- Organizational Transfers. Interorganizational or interdivisional transfers are materials, supplies, or services that are sold or transferred between divisions, subsidiaries, or affiliates of the contractor under a common control. They require special analysis because any profit included in an interorganizational transfer permits a contractor to pyramid profits by including profit (for other elements of the overall firm)

in contract costs. A firm could conceivably create more divisions and transfer material back and forth between those divisions to further increase total profit for the total corporate entity.

- **Transfers at cost**. To prevent contractors from pyramiding profits using interorganizational transfers, the Government has adopted the policy that interorganizational transfers must be made at cost. In other words, the transfer must not include any profit for the division, subsidiary, or affiliate making the transfer. Furthermore, the costs of that division, subsidiary, or affiliate are subject to audit and analysis, just like any other contractor costs.
- **Transfers at price**. However, an interorganizational transfer may be made at price (with profit), when all of the following four conditions are met:
    - It is the established practice of the transferring organization to price interorganizational transfers at other than cost (with profit) for commercial work of the contractor or any division, subsidiary, or affiliate of the contractor under common control.
    - The item being transferred qualifies for an exception to statutory requirements for cost or pricing data.
    - When the transfer price is based on a catalog of market price, the price should be adjusted to reflect the quantities being acquired and may be adjusted to reflect the actual cost of any modifications necessary because of contract requirements.
    - The procurement officer does not determine that the price is unreasonable.

6.6 Recognizing Subcontract Pricing Responsibilities

Privity of Contract Concept. The term "privity of contract" refers to the direct relationship that exists between contracting parties.

- The Government has a contract with the prime contractor, therefore there is privity of contract between the Government and the prime contractor.
- The prime contractor has a contract with its subcontractors, so privity of contract exists between the prime contractor and its subcontractors.
- However, the Government does not have a contract with any subcontractor, so no privity of contract exists between the two parties. Since no privity of contract exists, you cannot:
    - Negotiate directly with the subcontractor; or
    - Direct the subcontractor to take any action.
    -

While the Government has an interest in the activities and performance of the subcontractors, you must be careful not to violate the contractual relationship.

Responsibility to Analyze Subcontract Proposals. The firm awarding the subcontract (the offeror or a higher-tier subcontractor), is responsible for subcontract pricing. At the same time, the procurement officer is responsible for the total price paid by the Government and must be satisfied that each subcontracting tier has performed an adequate cost or price analysis of each subcontract proposal.

Part of that responsibility is to assure that the subcontracting activity has performed an appropriate price or cost analysis.

- **Price Analysis**. The firm awarding a subcontract must perform a price analysis when no cost analysis is performed and should perform a price analysis in conjunction with any cost analysis to ensure overall price reasonableness. This analysis should be similar to one that you would perform in pricing a similar contract under similar circumstances.

- **Cost Analysis**. The firm awarding a subcontract must analyze:
    - Any required subcontractor cost or pricing data, and
    - Any subcontractor cost information other than cost or pricing data required to determine cost reasonableness or cost realism.

The firm awarding a subcontract must include the results of these analyses as part of its own cost or pricing data submission. Lower-tier subcontract analyses become part of higher-tier submissions, and eventually the prime contractor's submission to the Government.

The results of these analyses should help the firm awarding the subcontract to arrive at a fair and reasonable subcontract price. Those same results should provide you with information that will help you arrive at a fair and reasonable contract price.

Consider a firm's failure to analyze subcontract costs as a potentially significant estimating system deficiency. If you believe that an analysis is inadequate or that the subcontract price is unreasonable, question the costs involved. Remember that a firm's failure to perform and submit an adequate analysis could lead to contract overpricing.

Responsibility to Obtain Subcontract Cost or Pricing Data. Unless the subcontract qualifies for an exception to statutory cost or pricing data requirements, any contractor or subcontractor required to submit cost or pricing data must also obtain cost or pricing data before:

- Awarding any subcontract or purchase order expected to exceed the cost or pricing data threshold, or
- Issuing any modification with a price adjustment amount expected to exceed the cost or pricing data threshold.

Responsibility to Submit Subcontract Cost or Pricing Data. An offeror required to submit cost or pricing data to the Government must also submit (or cause submission of) cost or pricing data from prospective subcontractors in support of each subcontract priced at the cost or pricing data threshold and more than 10 percent of the prime contractor's proposed price, unless the procurement officer believes such submission is unnecessary.

The procurement officer may require subcontractor cost or pricing data below the cost and price threshold when the data are considered necessary for adequately pricing the prime contract.

Exceptions to Subcontract Cost or Pricing Data Requirements. If you are satisfied that a subcontract will be priced on the basis of one of the exceptions to statutory requirements for cost or pricing data, do not require submission of subcontract cost or pricing data.

If the subcontract estimate is based upon the cost or pricing data of the prospective subcontractor most likely to be awarded the subcontract, do not require submission to the Government of data from more than one proposed subcontractor for that subcontract.

Responsibility to Support Subcontract Estimates. Require the offeror to support subcontractor cost estimates below the cost or pricing data threshold with any data or information (including other subcontractor quotations) needed to establish a reasonable price.

To provide adequate cost estimate support, the offeror may need to obtain information other than cost or pricing data from prospective subcontractors.

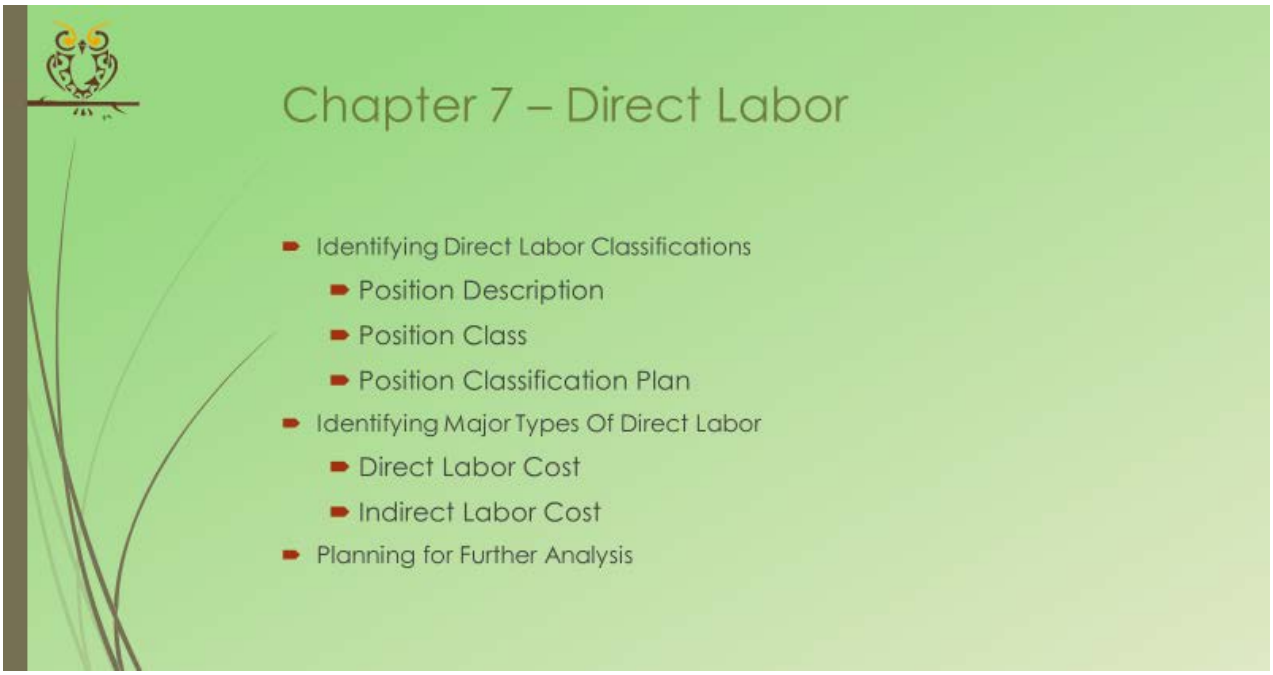
Responsibility for Updating Subcontract Cost or Pricing Data. The offeror is responsible for assuring that subcontractor cost or pricing data are accurate, complete, and current as of the date of price agreement or, if applicable, another date agreed upon between the parties, given on the contractor's Certificate of Current Cost or Pricing Data. Accordingly, the offeror is also responsible for updating a prospective subcontractor's cost or pricing data.

Remember that subcontract proposals are an integral part of prime contract proposals. As a result, when a prospective subcontractor's cost or pricing data are not accurate, complete, and current, the prospective prime contractor's proposal cannot be accurate, complete, and current.

Long Term Agreements. A Long-Term Agreement (LTA) is an agreement entered into between a prime contractor and a subcontractor to establish pricing for future purchases of specified items or services. LTAs allows a contractor to reach price agreement with a subcontractor in advance of agreement with the Government. It is not uncommon for contractors to enter into an LTA with a subcontractor in advance of a specific Government Request for Proposal.

You should not assume that the price resulting from an LTA was necessarily reasonable at the time of execution nor should you assume that it continues to be a reasonable price. It should be noted that the existence of an LTA negotiated prior to a prime contract award does not relieve the contractor of its responsibility to obtain and analyze certified cost or pricing data prior to subcontract award when required. You should evaluate the contractor's analysis of cost or pricing data at the time the LTA was established while also considering the procedures performed by the contractor to demonstrate that the LTA price continues to be fair and reasonable (e.g., capable competitors may have entered the market since the LTA was executed).

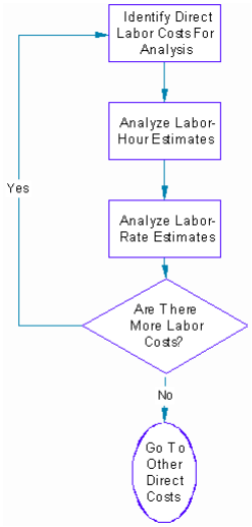
CHAPTER 7: DIRECT LABOR COSTS



7.1 Chapter Introduction

This chapter identifies points to consider as you develop your prenegotiation position on direct labor costs. Analysis Responsibility. The procurement officer has the ultimate responsibility for determining price reasonableness, but no one expects the procurement officer to be an expert in all the accounting and technical issues associated with direct labor cost analysis. However, you are expected to know who to ask for assistance and when.

Flowchart of Direct Labor Cost Analysis. The following flowchart depicts the key events completed as part of a typical direct labor cost analysis.



7.2 Identifying Direct Labor Costs For Analysis

This section presents points that you should consider as you identify direct labor costs and plan for further analysis.

- 7.1.1 - Identifying Direct Labor Classifications
- 7.1.2 - Identifying Major Types Of Direct Labor
- 7.1.3 - Planning For Further Analysis

7.2.1 Identifying Direct Labor Classifications

Labor Classification System. Each offeror should have a position classification system which serves as a guide for personnel selection and assignment. This system should provide both contractor and Government members of the Procurement Team with information on relevant position descriptions, position classes, and the position classification plan. That information can prove invaluable as you and other Government personnel evaluate the appropriateness of proposed labor estimates. In other words, this system can help you and other Government personnel determine if employee qualifications match contract requirements.

For example: When auditors perform formal contractor employee compensation reviews, they compare the firm's personnel classification data and related compensation with the compensation paid for similar skills by other firms in the local area.

Position Description. A position description is the documentation of the types of work (i.e., duties and responsibilities) assigned to an employee. Most firms should be able to produce a position description for each position. That description should identify specific position duties and responsibilities, as well as, qualification requirements (e.g., the required experience, skills, knowledge, and educational need to work in the position).

Position Class. A position class is a grouping of all positions that share the same title and pay level. For example, "Senior Electrical Engineer - Pay Level IV" is the title assigned to a class of positions. Normally, positions are assigned the same title and pay level only if the workers in the positions perform duties that:

- Are comparable in kind or subject matter;
- Are at the same levels of difficulty and responsibility; and
- Require the same basic qualifications.

Position Classification Plan. Sometimes called job evaluation plans, position classification plans identify the classes of labor employed by the firm and provide guidelines for determining the title and pay level of each position in the firm. Guidelines are generally in the form of job factors, degree requirements, skill qualification requirements, and conversion tables (such as the possible trade-offs between education and experience).

The position classes and labor rates identified in the proposal should be consistent with the offeror's classification plan. In other words, the offeror should not propose a top scientist to perform the type of work normally assigned to a journeyman engineer.

If an offeror does propose a top scientist to perform work normally assigned to a journeyman engineer, question the related excess cost. However, a top scientist may be acceptable if the offeror can demonstrate related savings, such as a reduction in the total labor hours required.

7.2.2 Identifying Major Types Of Direct Labor

Labor Cost. The amount and types of labor required to complete a contract will vary based on contract requirements. To complete a supply contract, the contractor will likely require engineers, manufacturing personnel, and a wide range of support personnel. A service contract might require a wide variety of personnel depending on contract requirements. Of course, most contracts will require personnel involved

in administration and support of contract operations.

Direct vs. Indirect Labor Cost (FAR 31.202 and 31.203). Most contracts require both direct and indirect labor. However, you will find that accounting and estimating

treatment will vary from firm to firm.

- **Direct Labor Cost**. A direct labor cost is any labor cost that can be identified specifically with a final cost objective (e.g., a particular contract).
    - Labor costs identified specifically with a particular contract are direct costs of the contract and must be charged to that contract.
    - Labor costs must not be charged to a contract as a direct cost if other labor costs incurred for the same purpose in like circumstances have been charged as an indirect cost to that contract or any other contract.
    - All labor costs specifically identified with other contracts are direct costs for those contracts and must not be charged to another contract directly or indirectly.
- **Indirect Labor Cost**. An indirect labor cost is any labor cost not directly identified with a single final cost objective but identified with two or more final cost objectives or an intermediate cost objective. For reasons of practicality, any **direct labor cost of minor dollar amount** may be treated as an indirect cost if the accounting treatment:
    - Is consistently applied to all final objectives, and
    - Produces substantially the same results as treating the cost as a direct cost.

Common Direct Labor Categories. While each offeror will have different terminology and different ways of categorizing its labor force, the two most common and largest types of direct labor in manufacturing contracts are engineering and manufacturing labor. The labor categories in service contracts are much more diverse.

Engineering Labor. Engineering involves a variety of activities associated with product research, product design, and the development of manufacturing methods and procedures. Most engineering activity is typically charged as a direct labor cost. However, the efforts of supervisors and many engineering support personnel may be charged as indirect costs.

Assure that the offeror is consistent in charging these costs as direct or indirect.

The following table presents descriptions of some of the most common engineering labor classifications.

Examples of Engineering Classifications	Description
Design Engineer	Involves delineating the end-product's characteristics and specifications
Manufacturing Engineer	Involves manufacturing planning, process instructions & work methods, shop loading, organizing work stations, and matching shop capabilities to contractual requirements
Reliability Maintainability Engineer	Involves designing and manufacturing products to meet longevity and repair requirements
Quality Assurance Engineer	Involves the formulation of standards and specifications for tests and inspections

Sustaining Engineer	Involves "as needed" support as problems arise throughout the life of the contract

Manufacturing Labor. Manufacturing labor is the effort required to actually produce an item. Most manufacturing labor cost is a "hands-on" direct cost. Some types of manufacturing direct cost (e.g., inspection), may be allocated to each job as an indirect cost. Depending on the circumstances and contractor accounting procedures, supervision may be a direct or an indirect cost.

As with engineering labor, assure that the offeror is consistent in charging these costs as direct or indirect under similar circumstances. If you have any question about proper cost treatment, contact the cognizant Government auditor for advice and assistance.

The following table presents examples of some of the most common manufacturing labor classifications.

Examples of Manufacturing Classifications	Description
Fabrication Labor	Involves the fashioning of parts from raw or purchased materials
Assembly Labor	Involves the effort to combine parts into subassemblies and assemblies
Quality Control Labor	Involves the act of testing or inspecting the product during the manufacturing process and

Services Labor. A service contract directly engages the time and effort of a contractor whose primary purpose is to perform an identifiable task rather than to furnish an end-item of supply. It can require professional or nonprofessional personnel on a individual or organizational basis.

The classes of labor effort required for contract performance will vary widely based on the tasks that must be performed to complete the contract. Tasks might include any of the following:

- Maintenance, overhaul, repair, servicing, rehabilitation, salvage, modernization, or modification of supplies, systems, or equipment;
- Routine recurring maintenance of real property;
- Housekeeping and base services;
- Advisory and assistance services;
- Operation of Government-owned equipment, facilities, and systems;
- Communications services;
- Architect-engineering services;
- Transportation and related services;
- Research and development; or
- Other services.

The service contract solicitation may define labor categories which the offeror must use in proposal preparation and contract performance (e.g., senior engineer or senior analyst). To comply with these solicitation-defined labor categories, the offeror may need to use a blend of personnel from more than one of the firm's position classes. In such cases, the offeror should identify the labor classifications that were blended to meet solicitation requirements. The blended labor-rate should correspond to the blend of skills required.

7.2.3 Planning For Further Analysis

Points to Consider. As you prepare your plan for direct labor cost analysis, look for indicators of uneconomical or inefficient practices. Consider the results of any technical analyses. If an element of proposed direct labor cost appears suspicious, concentrate more analysis effort on that element than on a less suspicious cost element of similar dollar value. As you plan:

- Identify and evaluate the methodology used by the offeror to estimate direct labor cost.
- Identify any proposed direct labor cost that does not appear reasonable.
- Identify any proposed direct labor cost that should be classified as an indirect cost.
- Identify any proposed direct labor cost that merits special attention because of high value or other reasons.
- Assure that preliminary concerns about direct labor cost estimates are well documented.

Identify and Evaluate Estimating Methodology. To identify and evaluate the methodology used by the offeror to estimate direct labor cost, ask questions such as the following:

- What basis did the offeror use to estimate direct labor cost?

Labor cost estimates normally include estimates of both labor hours and a labor-rate for each position classification. Estimates may be developed using round-table, comparison, or detailed estimating techniques.

- Does the methodology appear appropriate for the current estimating situation?

The method selected should use the information available to produce reasonable and equitable results. If the methodology used by the offeror does not appear appropriate, consider using a different methodology to develop your pricing position.

Identify any Cost That Does Not Appear Reasonable. To identify any proposed direct labor cost that does not appear reasonable, ask questions such as the following:

- Is the proposed labor effort consistent with the offeror's estimating assumptions?

If any part of the estimate is not consistent with stated estimating assumptions, question the costs involved.

- Is the proposed labor effort necessary to complete the contract?

Require the offeror to support the need for any direct labor cost that does not appear needed to complete contract tasks.

- Has the offeror accounted for all types of labor reasonably required to complete the contract?

Compare the contract task requirements with the skills proposed by the offeror. If the proposed labor cost does not include personnel with adequate qualifications to perform a specific task, question the labor cost for that task.

- Are the proposed labor classes and pay levels consistent with the firm's position classification plan?

If the proposed labor classes are not consistent with the offeror's position classification plan, it is likely that the proposal was not prepared in accordance with the firm's normal estimating procedures. Such proposals may include inflated labor costs or proposed personnel that do not have the knowledge, skills, and experience required to complete the contract.

- Are position class qualifications consistent with the knowledge, skills, and experience required to complete identified contract tasks?

When less-qualified personnel are assigned to tasks requiring higher qualifications, contract performance risk increases. Performance may even be impossible with the identified personnel. Assignment of high-skilled personnel with higher labor rates to tasks that can be efficiently completed by less-qualified

personnel needlessly increases contract cost unless their higher qualifications increase performance efficiency enough to compensate for the higher labor rates.

- Do the proposed labor classes and wage levels meet solicitation requirements?

Many service solicitations identify the types of skills needed to perform the contract. If proposed personnel fail to meet minimum solicitation requirements, the offeror's proposal will likely be unacceptable. If you accept unnecessarily high skilled personnel, contract cost increases unless their higher qualifications increase performance efficiency enough to compensate for the higher labor rates.

- Does the proposal include labor to complete the same task more than once?

Watch for task overlaps. For example, in writing technical publications and manuals, the proposal should clearly define where the responsibilities of the design engineer for preparing drawings, supporting materials, and documentation end and the responsibilities of the technical writer to transform these materials into a document begin. If the different tasks are not clearly defined, it is possible that both engineering and technical writing estimates may include estimated hours to perform the same work.

- Does the proposal include labor to complete work being performed under a related contract?

Occasionally an offeror will propose work that is actually performed under a related contract. Tasks that cross different contracts in the same project/program (e.g., project administration) are particularly susceptible to such overlaps.

- Is the proposed labor mix consistent with the historical mix for the task?

If the mix of labor used to complete past contracts is substantially different than the proposed mix, the proposal should explain why the change is necessary and reasonable. Even if the mix is consistent with the past, you may want to consider whether there should be a change. For example, when a product is new, contract performance may require more highly skilled engineers. As a product matures and moves into the later stages of its product life cycle, fewer and less skilled (and less expensive) engineers may be more appropriate.

- Does the proposed labor mix represent the firm's available work force, or the skill mix actually needed to complete the contract?

Be careful when the proposed labor is a better representation of the skill mix in the offeror's work force than the skill mix required to complete the contract. The offeror may not understand the work required to complete the contract. Alternatively, the offeror may be overestimating the work required to complete the contract.

- Do the labor hours proposed for any labor classification exceed the offeror hours available in that classification?

Occasionally an offeror will propose more hours in a particular position classification than the firm has available in that classification. When that happens assure that the estimate includes information on how the offeror will obtain the skilled personnel required to complete the contract.

Identify Any Proposed Direct Labor Cost That Should Be Classified As an Indirect Cost. To identify any proposed direct labor cost that should be classified as an indirect cost, ask questions such as the following:

- Has the offeror consistently treated this type of labor as a direct cost?

Similar costs incurred under similar circumstances should be charged in the same way. For example, if labor cost for shop expediter is normally charged as an indirect cost, then shop expediter labor cost for similar expediting effort should always be charged as an indirect cost.

Be careful, a technical evaluator may object to classifying a cost (e.g., shop expediter labor cost) as a direct cost because other firms classify similar labor as an indirect cost. However, the issue is not how other firms classify the cost but rather how the offeror's estimating and accounting systems treat the cost.

- Do the personnel projected to the work on this contract charge their time as a direct or an indirect cost under similar circumstances?

If similar costs are charged as a direct cost on one occasion and as an indirect cost on another occasion, the Government may be double charged for similar costs (once as a direct cost and once as an indirect cost). One way to quickly check if this type of labor should be a direct or indirect cost is to review the time cards of personnel projected to work on the contract. If an employee is currently charging time to a charge number that goes to an overhead account, you should determine how the situation will change under the proposed contract.

- Will each labor hour proposed for this contract benefit only this contract?

There may be situations where an employee is charging part-time to each of several contracts and part-time to overhead (e.g. a lead engineer who does both team management tasks and "hands-on" design work). Only those hours proposed for specific contract tasks should be recognized as a direct cost. Any indirect contract support (e.g., as team management) will be covered by application of overhead rates.

- Is it practical to account for this labor as a direct cost?

Good cost accounting practices will specifically identify a direct contract cost to the appropriate contract whenever it is practical. However, a minor direct cost may be treated as an indirect cost if the accounting treatment:

- Is consistently applied to all contracts, and
- Produces substantially the same results as treating the cost as a direct cost.

Identify Direct Labor Costs Which Merit Special Attention. To identify any proposed direct labor cost that merits special attention because of high proposed cost or other reasons, ask questions such as the following:

- Is the direct labor estimate for any task a large portion of the entire direct labor cost estimate?

Many times, a single task estimate will be a large part of the entire estimate. That estimate will normally merit special attention because of the dollars involved.

- Is any direct labor effort uniquely critical to contract performance?

Many times, the direct labor effort for a specific task or group of tasks will be uniquely critical to contract performance, because of schedule or technical requirements. Related cost estimates may merit special attention, to assure offeror understanding of the task. Document Concerns About Direct Labor Cost Estimates. To assure that concerns about direct labor cost estimates are well documented, ask questions such as the following:

- Have you identified concerns about direct labor cost estimates?
- If the answer is "yes" document the areas of concern for reference as you perform more in-depth analysis.
- Has the offeror had an opportunity to answer your concerns?

Consider raising these concerns in fact-finding conversations with the offeror. If the problem is an error in the proposal, bring the error to the offeror's attention so that it can be corrected prior to formal negotiations.

7.3 Analyzing Labor-Hour Estimates

This section identifies points to consider as you analyze direct labor- hour estimates.

- 7.2.1 - Analyzing Round-Table Estimates
- 7.2.2 - Analyzing Comparison Estimates
- 7.2.3 - Analyzing Estimates Developed Using Labor

Standard Steps for Labor-Hour Estimate Analysis. The points that you consider in your analysis will not be the same for every estimate. However, there are general steps that you should follow as you conduct

your analysis of direct labor-hour estimates:

- Give special attention to any direct labor-hour concerns identified during your preliminary review of direct labor cost estimates.
- Determine whether the estimating method is appropriate for the estimating situation.
- Determine whether the estimating method was properly applied.

Develop and Document Your Prenegotiation Position. As you develop and document your prenegotiation position on direct labor hours:

- If you accept the offeror's labor-hour estimate, document that acceptance.
- If you do not accept the labor-hour estimate, document your concerns with the estimate and develop your own prenegotiation position for costs covered by the estimate.
- If you can identify information that would permit you to perform a more accurate analysis of direct labor-hours, use the available information. Your analysis is not bound by the estimating methods used by the offeror.

7.3.1 Analyzing Round-Table Estimates

Round-Table Estimates. Experts develop round-table labor-hour estimates based on their experience and judgment without using detailed drawings or a bill of materials, and with limited information on specifications.

Determine If a Round-Table Estimate Is Appropriate. To determine whether use of a round-table estimate is appropriate for the estimating situation, ask questions such as the following:

- Are there sufficient information and historical data available for use of a more accurate cost estimating method?

Round-table estimating should only be used in situations where detailed drawings, bills of material, and firm specifications are not available. Carefully scrutinize all round-table estimates to assure that sufficient information and historical data are not available for use of cost estimating method that typically produces more accurate results.

- Does the offeror commonly use round-table estimates in similar estimating situations?

Round-table labor-hour estimates are most commonly used for research and development contracts and other contracts that will require the offeror to perform tasks that are not well defined at the time the estimate is prepared.

- Does the cost involved warrant a more detailed estimate?

For a small dollar amount, a round-table estimate may be acceptable, because the cost risk involved does not warrant the collection the data required for use of another estimating method.

Determine If The Round-Table Estimate Was Properly Developed And Applied. To determine if the round-table estimate was properly developed and applied, ask questions such as the following:

- Is the estimator's experience appropriate for developing a round-table estimate in this situation?

The offeror may assign a single estimator or a group of estimators to develop the estimate. The estimators will define the effort required in general terms and use that definition to estimate the number of people and the time required to perform the task.

Evaluate the estimators' experience with similar work. Anyone can guess about future costs. Personnel preparing round-table estimates should have experience with similar work and similar situations.

- Has the estimator prepared accurate round-table estimates for other contracts?

Normally, you should be more concerned about estimates prepared by a person with little estimating experience or a record of inaccurate estimates.

- Does the estimate include an adequate description of the task involved?

Round-table estimates may be summary level estimates of the time to complete an entire contract or lower level estimates of the time to complete a particular task. Require the offeror to document the definition of the task used in preparing the estimate.

- Does the estimate include an adequate description of the process and assumptions used to

develop the estimate?

The estimate should include a clear description of the rationale used to develop the estimate. The rationale may be brief, but it must describe the process and assumptions used in preparing the estimate. If further clarification is needed, consider tracing some of the labor hour estimates back to the supporting work sheets and ask the estimating team to explain any discrepancies.

- If the estimate assumes a fixed level of effort over a period of time, is that assumption reasonable?

A fixed level of effort is commonly used to estimate the hours to perform repetitive tasks such as those found in project management and administration (e.g., a full-time project manager throughout the term of the contract). Evaluate the need for a fixed level of effort. For example, a large staff may be required for contract start-up, but a much smaller staff may be able to do the work required during later contract performance.

- Does the estimate indicate that the required effort is more complex than it really is?

A more complex effort will require more time and higher skill levels than a less complex effort. Evaluating the task complexity is usually rather subjective. However, you might be able to develop a feel for the complexity of a task by relating it to the effort required to perform a similar task.

Do not be misled. For years, the Government and its contractors have pushed forward the state-of-the-art in many fields. Today's knowledge is far broader than it was a few years ago. Because complexity is relative, the problems of today, relatively speaking, may be easier to solve than the less complex problems of the past.

- What does YOUR professional JUDGMENT tell you?

It is not enough to ask for the advice of technical experts. Ask questions until YOU understand. You will receive two benefits from asking questions: you will learn about the labor specialties and the language involved in performing the work required and you will become more confident in your objective if you truly understand the contract effort required.

7.3.2 Analyzing Comparison Estimates

Comparison Estimate. To develop a comparison labor-hour estimate, an estimator must first determine the cost to complete the same or similar work in the past. Then the estimator must develop an estimate of future contract cost based on the historical experience. Comparisons can be simple or involve the use of complex quantitative techniques. The two most common forms are:

- Direct Comparison. Comparisons may be based on a direct comparison with the hours it took to perform the same or similar effort in the past. The effort may be a specific task or a level of effort. The comparison may be used to estimate the labor cost for an entire contract or a segment of the contract. Remember even in a contract for a unique requirement, there may be tasks that are similar to the work performed in past contracts.
- Most direct comparison estimates will include an adjustment to consider differences in the acquisition situation. The rationale for these adjustments should be explained whether they are made using a quantitative or a subjective analysis.

    - Quantitative techniques (e.g., moving averages, improvement curves, or regression analysis) are frequently used to identify trends in historical data. Once a trend is identified, you can use these same techniques to project it into the future.
    - Estimators also frequently use subjective adjustment factors in comparison estimate development. These subjective factors are commonly given names such as, "plant condition factor," "manufacturing allowance," or "complexity factor." For example, the estimate may state that the direct labor cost of a proposed contract is similar to the effort on a previous

contract but is 20 percent more complex.

- **Cost Estimating Relationships**. A cost estimating relationship (CER) is a technique used to extend comparisons. Instead of simply basing a labor-hour estimate on the labor hours required to complete a similar task in the past, an estimator can develop CER that relates changes in cost to changes in an independent product variable or group of independent variables. Once a CER is developed, you can use it to develop more accurate estimates of labor-hour requirements. That independent variable may be another contract cost or a product characteristic:
    - A **cost-to-cost relationship** is based on an established relationship between two contract costs. For example, the offeror may analyze historical data from contracts that require engineering effort and find that engineering assistants work four hours for every hour worked by a senior engineer. Based on that analysis the estimator would include four engineering assistants for every hour of senior engineer labor.
    - The **product-to-cost relationship** relates a labor-hour estimate to a physical or performance characteristic of the product. For example, the offeror may find that the labor effort required to complete a janitorial service contract is related to number of square feet included in the contract.

Obtain and review the analysis wherein the contractor concluded that the chosen CER will result in reliable estimates and note the rationale for any adjustments to the data. Ask the estimating team to explain the rationale for using the comparison estimate as opposed to developing a detailed (bottoms-up) analysis.

Determine If a Comparison Estimate Is Appropriate. To determine whether use of a comparison estimate is appropriate for the estimating situation, ask questions such as the following:

- Is there a detailed analysis of work requirements that could be used for estimate development?

Comparison estimates can be quite accurate, but detailed estimating information should generally be used when available.

- Does the offeror commonly use comparison estimates in similar estimating situations?

If the offeror typically uses a detailed estimate in similar situations, question why one was not used to prepare the estimate under analysis.

- Does the cost involved warrant a more detailed estimate?

While they typically provide more insight into offeror procedures and requirement analysis, detailed estimates are time consuming and costly to develop. For a small dollar amount, a round-table or comparison estimate may be more desirable, because of the faster and less expensive analysis required.

Determine If The Comparison Estimate Was Properly Developed And Applied. Analysis of any labor estimate based on historical labor hours should consider the acquisition situation that existed when the historical labor hours were incurred and any differences between that situation and the current acquisition situation. To determine if the comparison estimate was properly developed and applied, ask questions such as the following:

- Are the methods to be employed on the proposed contract identical to those used in the historical effort?

If methods have changed, the value of comparison estimates is open to question. You are in effect comparing apples and oranges. For example, the use of new labor-saving equipment could significantly reduce the labor hours required on the contract.

- Do the historical costs represent efficient application of labor to contract completion?

If a one-time problem occurred during performance of the prior contract and no adjustment is made, you will be assuming that the same problem or a similar problem will occur on the proposed contract.

- Do historical costs include the cost of changes?

If the cost history includes the cost of changes, a cost estimate based on that history will project similar changes in the future. It may be necessary to purge the history of costs that are not anticipated to be part of the proposed work. Examples of costs that may need to be purged include: non-recurring costs, engineering changes, program redirection, rework, and production start-up.

- Has the make-or-buy plan changed?

If the offeror is now buying items that were previously made, the historical data should be adjusted to preclude estimating the labor cost to make an item that is being purchased.

- Is there any labor activity included in the historical costs that is also estimated separately?

If there is, the offeror has double estimated the cost. It must be eliminated in one estimate or the other. The time for rework and repair is an important example. Actual costs typically include the time for rework and repair. If such costs are included, do not accept any additional factors for rework and repair.

- Are the historical data complete?

The history should be accurate, complete, and current. Assure that portions of the relevant history are not missing, and that latest cost history is included.

- How reliable are the historical data?

The cognizant Government auditor can provide guidance on the acceptability of the offeror's cost accounting system. If the auditor feels that the offeror's system lacks appropriate checks and balances, is riddled with errors, or has resulted in mischarging, then the accuracy and reliability of the data are questionable.

- Does application of the should-cost principles reveal incidents of uneconomical or inefficient historical performance?

Use of cost history without critical examination could perpetuate the inefficiencies and problems of the past.

- Did the offeror correctly adjust the estimate for all significant changes in the production environment since the last contract?

Look for any significant differences in working or operating conditions that could throw off the estimate. For instance, be alert for differences in:

- Specifications (especially if specifications have been simplified since the last contract);
- Process steps;
- Equipment and tooling;
- Plant layout;
- Inspection procedures;
- Labor mix;
- Employee skill levels;
- Type of shop (e.g., model vs. production);
- Delivery schedules;
- Production rates and quantities;
- Plant capacity (full vs. idle);
- Number of shifts; or
- Overtime hours.
- If the labor-hour estimate includes a subjective adjustment factor, is the factor reasonable?

The offeror may have provided subjective estimates for such factors as task complexity. When an offeror uses a subjective adjustment factor, the offeror should document both the need for such a factor and the rationale used to arrive at the adjustment included in the estimate.

- Have appropriate quantitative techniques been used to adjust historical data to estimate proposed contract costs?

If the offeror has had experience in making this or a like deliverable, examine historical data for evidence of trends in labor hours per unit. If there is such evidence, trend analysis or improvement curve theory could result in a more accurate projection of future labor hours.

- If the labor-hour estimate was developed using a quantitative technique (e.g., a CER, moving average, improvement curve, or regression analysis), did the estimator consider the related issues and concerns?

Whenever an estimator uses a quantitative analysis technique in estimate development, the proposal and related data should consider the issues and concerns related to the use of that technique.

7.3.3 Analyzing Estimates Developed Using Labor Standards

Labor Standard. A labor standard is a measure of the time it should take for a qualified worker to perform a particular operation. Labor standards are commonly grouped into two types:

- **Engineered Standards** are developed using recognized principles of industrial engineering and work measurement. The standards developed define the time necessary for a qualified worker, working at a pace ordinarily used, under capable supervision, and experiencing normal fatigue and delays, to do a defined amount of work of specified quality when following the prescribed method.
- **Non-engineered Standards** are developed using the best information available without performing the detailed analysis required to develop an engineered standard. Historical costs are commonly used standards that are often a measure of the hours that have been required to complete a task rather than the hours that should be required.

Determine If Labor Standard Use Is Appropriate. To determine whether use of a labor standard is appropriate for the estimating situation, ask questions such as the following:

- Does the offeror commonly use labor standards in similar estimating situations?

If the offeror does not use labor standards for other contracts, the proposed contract or a group of similar contracts will likely be required to cover the entire expense for standard development and maintenance. Prospective benefits may not warrant the cost involved.

- Is the offeror using non-engineered labor standards, when projected costs appear to warrant use of engineered labor standards?

As described above, historical costs are commonly used to develop non-engineered standards. As a result, non-engineered standards do not benefit from an assessment of what the cost should be. Such analysis is invaluable for identifying inefficiencies in contractor operations.

- Does the cost involved warrant use of an engineered labor standard?

While they typically provide more insight into offeror procedures and analysis of Government requirements, engineered labor standards are time consuming and costly to develop. For a small dollar amount, a comparison estimate may be more desirable, because of the faster and less expensive analysis required.

Determine If The Labor Standard Was Properly Developed And Applied. To determine if the labor standard was properly developed and applied, ask questions such as the following:

- Did the estimator consider the issues and concerns related to labor standard development and application?

Whenever an estimator uses a labor standard in estimate development, the proposal and related data should consider the issues and concerns related to standard development and use.

- If the estimator used a non-engineered standard based on historical data, did the estimator consider the questions related to developing and applying an estimate based on comparison estimates?

A non-engineered estimate based on historical cost is really a form of comparison estimate. If there has been no engineering analysis of what the task completion time should be, the estimate should be analyzed like any other comparison estimates.

- How does the company accumulate and distribute labor variances?

The difference between the actual labor cost and the standard labor cost charged to the contract is called a variance. Variance adjustments may be handled by making cost adjustments on each job, or they can be absorbed as an overhead adjustment. Ask the contractor to explain the source of the applied standards and if the variances are significant, ask the contractor to explain why.

- Do all contracts use the same labor standards?

If the variance is absorbed in overhead, determine that the same labor standards are used by all contracts, particularly commercial and government. In addition, verify that the labor skill mix requirements are roughly the same between commercial and government contracts. If commercial requirements differ, assess the risk that labor standards have been set artificially low for the labor mix associated with commercial contracting. Low standards create higher variance costs, which are then allocated through the overhead adjustment to all contracts.

7.4 Analyzing Labor-Rate Estimates

This section identifies points to consider as you analyze direct labor labor-rate estimates.

- 7.3.1 - Considering The Skill Mix Of Labor Effort
- 7.3.2 - Considering The Time Period Of Labor Effort
- 7.3.3 - Considering Company-Unique Factors

Consider Preliminary Review Results. As you analyze offeror-proposed labor rates, give special attention to any direct labor rate concerns identified during your preliminary review of direct labor cost estimates.

As you evaluate offeror labor rates, remember that employee compensation includes more than just wages. Many elements of compensation (e.g., pensions, savings plan benefits, incentive bonuses, and health insurance) typically appear in indirect cost accounts. As a result, compensation analysis is a complex task that requires in-depth understanding of the firm's compensation package and accounting procedures.

Bases for Determining Labor Rate Reasonableness. Center your labor-rate analysis on the five questions below. If you can answer yes to one or more of these five questions, you should normally determine that the proposed labor rate is reasonable:

- Is the proposed labor rate and related compensation reasonable based on comparisons with the compensation practices of other firms of the same size?
- Is the proposed labor rate and related compensation reasonable based on comparisons with the compensation practices of other firms in the same industry?
- Is the proposed labor rate and related compensation reasonable based on comparisons with the compensation practices of other firms in the same geographic area?
- Is the proposed labor rate and related compensation reasonable based on comparisons with the compensation practices of firms engaged in predominantly non-Government work?

- Is the proposed labor cost reasonable based on comparisons with the cost of comparable services from other sources?

Factors to Consider in Labor Rate Comparisons. The questions above are straight-forward, but the related comparisons may not always be easy. As you make labor-rate comparisons, consider the effect of the following factors on those comparisons:

- Government labor-rate requirements;
- Skill mix of labor effort;
- Time period of labor effort; and
- Company-unique labor factors.

Develop and Document Your Prenegotiation Position. As you develop and document your prenegotiation position on labor rates:

- If you accept the offeror's labor-rate estimate, document that acceptance.
- If you do not accept the labor-rate estimate, document your concerns with the estimate and develop you own prenegotiation position for costs covered by the estimate.
- If you can identify information that would permit you to perform a more accurate labor-rate analysis, use the available information. Your analysis is not bound by the estimating methods used by the offeror.

7.4.1 Considering The Skill Mix Of Labor Effort

Skill Mix. The labor rate for a top scientist is usually more than the labor rate for a technician. You would not accept a cost estimate that proposes only top scientists for routine equipment repair. At the same time, you would not accept a cost estimate that proposes only technicians for a complex research effort to advance the state of the art in nuclear physics.

Part of your task in evaluating proposed labor rates is to evaluate the labor mix. You will likely need technical support to develop a pricing position that represents an effective and efficient mix of skills for contract performance.

- Is the proposed skill mix reasonable for the work required?

Most contracts require a mix of skills. For example, top scientists would obviously play a key role in a contract to advance the state of the art in nuclear physics, but technicians would likely be more efficient and more effective at performing many tasks. Top scientists would cost more per hour and likely require more hours. Technicians may be able to do many of the tasks traditionally assigned to top scientists but require much longer to complete them.

- Is the proposed skill mix reasonable based on the mix used in performing similar contracts?

Comparisons are particularly important for follow-on contracts for similar products or services. Normally, higher level skills should not be employed on a follow-on contract unless there were identified labor problems or more complex work is required. Lower level skills may be appropriate as complex problems are solved and contract effort becomes more routine.

Calculating a Weighted-Average Labor-Rate. When pricing proposals, offerors usually find it impractical, if not impossible, to identify the exact labor rate for each individual projected to work on the contract. They likely do not know exactly who will work on which contract and how many hours they will work.

- Did the offeror use a weighted-average labor rate?

The offeror may estimate labor rates by position class (e.g., senior engineer or principle analyst) or by department. Either way, they will likely use some form of weighted-average labor rate. A weighted average rate takes into account the rate and the number of workers working at that rate.

- Did the offeror calculate the weighted-average labor rate correctly?

The following table demonstrates the weighted-average labor rate calculation for Engineering Department A. The department work force includes three engineering position classes: senior engineer, intermediate engineer, and entry-level engineer.

Calculating a Weighted-Average Labor Rate for Engineering Department A			
Engineering Labor Category	Engineers Employed	Labor-rate per Hour	Weighted Data Column
Senior	100	$37.50	$3,750.00
Intermediate	200	$31.02	$6,204.00
Entry-Level	300	$29.90	$8,970.00
Totals	Engineers Employed	Weighted Data	
Total From Dept. A	600	$18,924.00	
Total From Dept. B	725	$26,462.50	
Combined Total	1,325	$45,386.50	
Combined weighted-average labor rate = $45,386.50 ÷ 1,325 = $34.25			

- The offeror plans to divide this new department into two teams -- Competitive Production Contracts Team and Non-competitive Production Contracts. Everyone will be doing the same work as before the two departments were combined.
- By combining these two departments with dissimilar work forces, the offeror can shift cost from the competitive production work to the non-competitive work.
- Under the combined structure the workers on the non-competitive contracts in the old Department A would have a rate of $34.25 an hour instead of $31.54, even though the workers are the same.
- Under the combined structure the workers on the competitive contracts in the old Department B would have a rate of $34.25 an hour instead of $36.50, even though the workers are the same.

Contract vs. Plant-Wide Averages. Many procurement officers question the use of plant-wide labor rates for contract pricing. They feel that the contract direct labor rate should reflect only the work required under the contract.

- Does the Government consistently accept the plant-wide labor rate for other contracts?

Normally, you should use a plant-wide labor rate if the Government accepts the plant-wide rate for all other proposals. In other words, both you and the offeror must be consistent! Neither party should "cherry pick" rates by using the specific contract rate or the plant-wide average, depending on the relative pricing advantage involved. The offeror's estimating procedures should clearly spell out how labor rates will be applied.

- Is a plant-wide labor rate reasonable for the proposed contract?

If the offeror estimates using plant-wide average rates but the work performed on your contract is substantially different than the other work performed by the offeror, the skill mix required on your contract may be substantially different. If the proposed contract effort is different than other work performed by the offeror, you may need to encourage the offeror to change the method used in labor-rate estimating. Contact the cognizant ACO or the cognizant Government contract auditor for assistance.

7.4.2 Considering The Time Period Of Labor Effort

Need to Evaluate Estimates of Time of Performance. Unless the proposed contract is going to be completed within a few weeks of contract award, the time period or periods when work will be performed becomes very important. Labor rates are not constant. To develop a realistic estimate of direct labor costs, the estimate must match the labor-hour estimate with a reasonable labor rate for the period when the work will take place. Remember, the objective of your analysis is to develop a pricing position that, as closely as possible, estimates what actual labor costs will be.

Labor-Loading Schedules. The offeror's proposal should include labor-loading schedule -- a time-phased (e.g., monthly or quarterly) breakdown of labor hours, rates, and costs by labor category.

- Does the labor-loading schedule provide a reasonable match of the labor hours required to complete the contract with the time period when the labor effort is projected to occur?

The proposal should include supporting rationale for the assignment of labor hours to future time periods and the pattern of labor-hour estimates in the schedule should match the pattern of work expected for contract performance. For a contract that will extend over many months, you should not expect that all work will be completed in the first month or the last. You should expect labor effort throughout the period, and the pattern should be reasonable (e.g., product design should be scheduled before product assembly).

For example: The two tables below present two different contract labor estimates from a company that revises labor-rate estimates annually. Work begins in August 19X1 and will continue at a relatively constant level of effort through April 19X2. Note that Labor Estimate 1 appears more reasonable, because the labor-hours are more logically identified with the period when they are projected to occur.

Labor Estimate 1			
Rate Period	Estimated Hours	Hourly Rate	Labor Estimate
19X1	5,000	$10.38	$51,900.00
19X2	5,000	$10.99	$54,950.00
TOTALS	10,000		$106,850.00

Labor Estimate 2			
Rate Period	Estimated Hours	Hourly Rate	Labor Estimate
19X2	10,000	$10.99	$109,900.00

- Does the labor-rate proposal conform to the offeror's accounting and estimating practices?

The offeror may estimate rates for each month, quarter, year, or some other period. Whatever estimating periods the offeror uses to estimate labor rates, the estimate should use the same periods.

Using Industry and Company Data to Estimate Future Rates. The offeror's labor rates must be reasonable for the work required and the time period when the work will be performed.

- Are future rate estimates reasonable considering the current rate and projected industry rate increases?

There are two U.S. Bureau of Labor Statistics indexes that you may find useful as you analyze projected labor rate changes.

- The Employment Cost Index provides information on compensation changes over time with data presented by occupation, occupation within industry, regions, bargaining unit status, and metropolitan area status.
- The Consumer Price Index provides information on changes in consumer prices over time. While this index does not relate directly to labor rates, changes for many labor rates are tied to changes in the index.

The indexes above are historical indexes. You can use the data to estimate trends, but the indexes do not provide forecasts. However, there are commercial forecasting services (e.g., DRI/ McGraw-Hill) do provide such forecasts.

- Are future rate estimates reasonable considering the current rate and historical rate increases provided by the firm?

Company labor-rate increases usually follow a trend over time. If you have three years of labor-rate data and you note that wages are increasing at a rate of five percent per year, you can use that information coupled with other data to estimate future rates.

However, remember that historical data reflect what happened in the past. You can use a quantitative technique (e.g., regression analysis) to project the trend, but such analysis will not be able to predict changes in the economy and other factors that will affect labor rates.

Labor-Management Agreement. Rates must be reasonable considering any existing labor-management agreement. However, you should question any rates that appear unwarranted or discriminatory.

- Do the proposed labor rates conform to any labor-management agreement on wages or salaries?

Proposed labor rates should normally conform to any labor-management agreement on wages or salaries. However, contractor labor policies and compensation practices, whether or not included in labor-management agreements, are not acceptable bases for analyzing proposed labor rates if those policies and practices result in unreasonable costs to the Government.

- If there is a labor-management agreement on wages or salaries, should you use it as a basis for estimating future labor rates?

You should consider costs of compensation established under "arm's length" negotiated labor-management agreements reasonable, if you do not determine that they are unwarranted by the character and circumstances of the work or discriminatory against the Government.

- A labor rate is unwarranted when the offeror applies the agreement provisions that were designed to apply to a given set of circumstances and conditions of employment (e.g., work involving extremely hazardous activities) to a Government contract involving significantly different circumstances and conditions of employment (e.g., work involving less hazardous activities).
- A labor rate is discriminatory against the Government if it results in employee compensation (in whatever form or name) in excess of that being paid for similar non-Government work under comparable circumstances.

7.4.3 Considering Company-Unique Factors

Differences Between Companies. There can be vast differences in the compensation policies and procedures of different firms -- even when the firms are in the same industry and region. You must consider these differences as you perform your direct labor-rate analysis.

- Is each proposed labor rate representative of the employees who will perform the work?

Typically, contractors estimate direct labor rates for each major category of labor. Most contractors calculate each estimated rate by finding the simple average of the actual pay rate of the participating employees. However, some contractors calculate a weighted average labor rate based on the expected direct hours each participating employee is likely to charge direct. Generally, the latter method is more accurate, but it requires more effort to compute. Still, other contractors may estimate based on the pay rate of the specific individual who will be performing the work. This may be appropriate when a contract calls for the "know-how" of specific individuals. Each of these methods may result in reasonable labor estimates provided a consistent practice is followed and deviations will not affect the proper recovery of anticipated costs.

- Are the estimated rates based on the actual pay rates of incumbent employees?

If a majority of the employees expected to perform work on the contract are on the current payroll, the direct labor estimate should be based on the known current pay rates. Ask the contractor to explain any adjustments made to current paid labor to arrive at the estimates.

Uncompensated Overtime.

The term "uncompensated overtime" relates to any unpaid hours worked in excess of an average 40 hours per week by an employee who is exempt from requirements of the Fair Labor Standards Act (FLSA). Over the past few years, uncompensated has become a substantial concern in labor-rate analysis, particularly in service contracting. Increasingly, firms are encouraging or even requiring FLSA-exempt employees to work a 45 to 80-hour week - while paying them a salary based on 40 hours.

- How does the firm account for uncompensated overtime?

All firms do not all treat uncompensated hours in the same way.

- Some firms only account for eight hours of work each day no matter how many hours are actually worked. This is known as "40-hour accounting." Of these firms, some distribute labor costs only to cost objectives worked during the first eight hours of the work day. Others permit employees to select the cost objectives to be charged for excess hours. These accounting methods provide opportunities for the firm to manipulate the allocation of direct labor costs and related indirect costs.
- Other firms require their employees to charge for every hour worked - compensated or not. This is known as "total time accounting".
- How does the offeror's method of accounting for uncompensated overtime affect labor rates and product quality?

Differences in accounting for uncompensated overtime can affect proposal evaluation. It can be a particular problem for technical or professional services contracts where the requirement is defined by the number of hours to be provided rather than by the task to be performed. For example, Firm A may be able to offer a lower rate per hour than Firm B, because Firm A requires its employees to accept uncompensated overtime and Firm B does not.

- Insert the Identification of Uncompensated overtime provision in any solicitation valued above the small purchase threshold for professional or technical services to be acquired on the basis of the number of hours to be provided.
- When evaluating the realism of the proposed price for a professional or technical service contract where the requirement is defined on the basis of the number of hours to be provided, consider the probable effects of compensated overtime on contract performance. For example, one employee

working 80 hours per week may not be able to contribute as much to contract performance as two employees who are both working 40 hours per week.

Paid Overtime and Shift Premiums.

- Does the proposal include paid overtime or shift premiums?
- Whenever possible, ascertain the extent that offers are based on payment of overtime or shift premiums.
- Is the paid overtime or shift premium reasonable?

Do not negotiate prices that include overtime or shift premiums unless they are necessary for timely contract completion.

- Simply stated, the Government requirement must necessitate the need for premium charges.
- If the offeror is proposing overtime to compensate for poor scheduling, Government recognition of the overtime costs is clearly not reasonable.
- Approval of overtime use may be granted by an agency approving official after determining in writing that overtime is necessary to:
- Meet essential delivery or performance schedules;
- Make up for delays beyond the control and without the fault or negligence of the contractor; or
- Eliminate foreseeable extended production bottlenecks that cannot be eliminated in any other way.

Changes in Labor Demographics. Changing demographics can have a substantial effect on labor rates.

- Are labor rates affected by demographic changes related to business volume?

Business volume changes can have a substantial effect on labor demographics, including: major personnel hiring, layoffs, recalls, and early retirement options.

- Layoffs are typically accomplished considering seniority. New lower-paid employees are usually the first to go with the more senior higher paid employees staying on. The result is an increase in average labor rates.
- Recalls and new hiring typically introduce additional employees at relatively lower pay levels. The result is a decrease in average labor rates.
- Early retirements typically allow higher paid senior employees to leave the company. Labor rates drop, but retirement expenses (indirect costs) may increase.
- Are labor rates affected by demographic changes related to production methods?

Production method changes can have a disruptive effect on labor rates by shifting the number of employees in different skill levels and by eliminating or adding whole job categories. For example, a shift from manual production to automated production may cause the firm to replace skilled craftsmen with lower-skilled machine operators.

Compensation Trade-Offs. In most firms, wage rates are only part of a complex compensation package. Differences in these packages can significantly affect comparisons between firms.

- Do differences in other elements of compensation affect labor-rate comparisons?

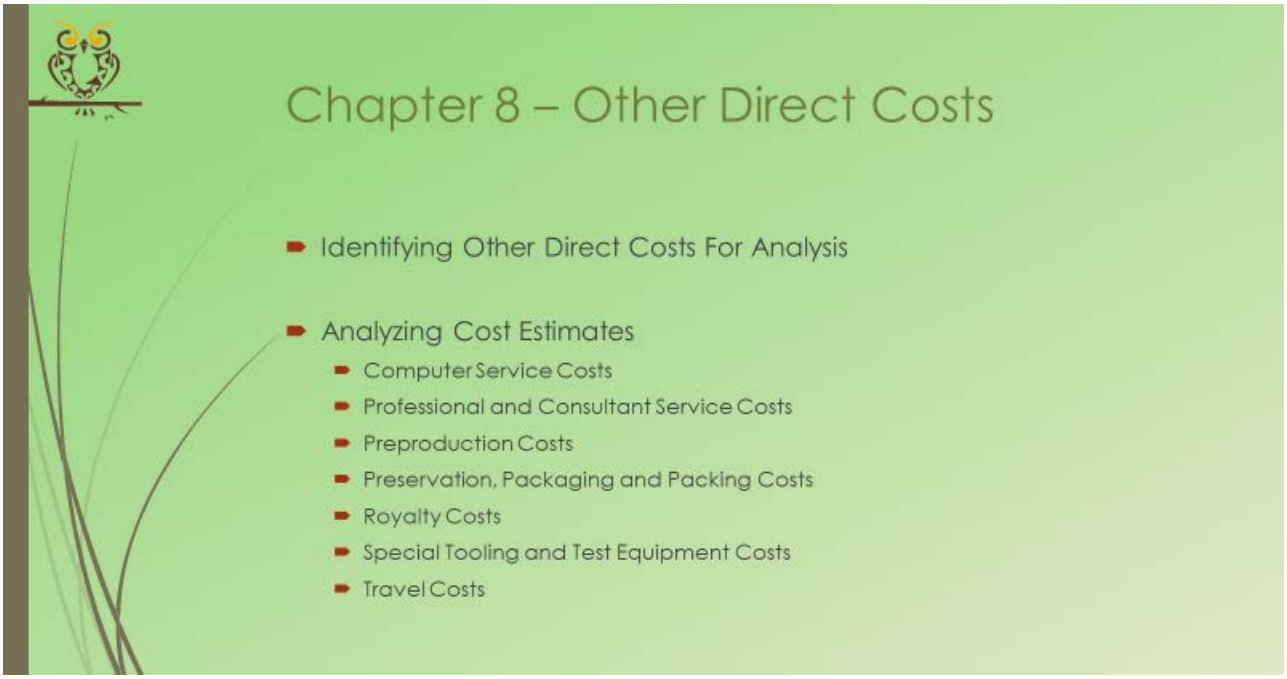
Your comparison of the labor rate of one firm with the rates of other firms may be affected by related compensation package differences (e.g., lower labor rates but higher pension benefits). Only consider offsets between the allowable elements of an employee's (or a job class of employees') compensation package or between the compensation packages of employees in jobs within the same job grade or level.

- Do trade-offs between labor rates and other compensation elements appear to result in a compensation package that is reasonable overall?

Consider measurable trade-offs between any of the following compensation elements:

- Wages and salaries;
- Incentive bonuses;
- Deferred compensation;
- Pension and savings plan benefits;
- Health insurance benefits;
- Life insurance benefits; and
- Compensated personal absence benefits.

CHAPTER 8: OTHER DIRECT COSTS

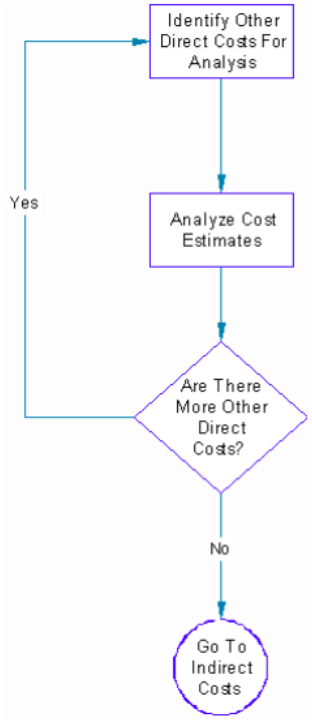


8.1 Chapter Introduction

This chapter identifies points to consider as you develop your prenegotiation position on other direct costs.

Analysis Responsibility. The procurement officer has the ultimate responsibility for determining price reasonableness, but the procurement officer should request any necessary support from other members of the Government Acquisition Team. Any request for support should be tailored to the proposal under analysis. Requesting unnecessary assistance can waste important Government resources.

Flowchart of Other Direct Cost Analysis. The following flowchart depicts the key events completed as part of a typical other direct cost analysis:



8.2 Identifying Other Direct Costs For Analysis

Identifying Other Direct Costs. Other direct costs are costs not previously identified as a direct material cost, direct labor cost, or indirect cost. In other words, an '*other direct cost'* is a cost that can be identified specifically with a final cost objective that the offeror does not treat as a direct material cost or a direct labor cost. Examples of the types of cost that are commonly proposed as other direct costs include:

- Special tooling and test equipment:
- Computer services;
- Consultant services;
- Travel;
- Federal excise taxes;
- Royalties;
- Preservation, packaging, and packing costs; and
- Preproduction costs.

Reasons for Other Direct Cost Identification and Treatment. Costs are identified and treated as other direct costs to assure proper allocation and treatment.

- **Cost allocation**. An other direct cost is often the type of cost that the firm would normally charge as an indirect cost, but the proposed contract requires a large, unusual, or one-time expenditure (e.g., special tooling) that will benefit only the proposed contract. It would be unreasonable to expect the rest of the firm's products to share these unique costs.
- **Cost treatment**. Costs may be treated as other direct costs to assure that they will receive proper treatment. For example, special tooling bought to complete a specific Government contract will normally become Government property. That property may then be furnished to that firm or other firms for similar contracts.

Points to Consider. As you plan for other direct cost analysis, look for indicators of uneconomical or inefficient practices. Consider the results of any technical or audit analyses. If an element of proposed other direct cost appears suspicious, concentrate more analysis effort on that element than on a less suspicious cost element of similar dollar value. As you plan:

- Identify any proposed other direct cost that apparently should be classified as an indirect cost.
- Identify any proposed other direct cost that appears to duplicate another proposed direct cost.
- Identify any proposed other direct cost that does not appear reasonable.
- Identify any proposed other direct cost that merits special attention because of high value or other reasons.
- Assure that concerns about other direct cost estimates are well documented.

Identify Any Proposed Other Direct Cost That Apparently Should Be Classified As an Indirect Cost.

Because many other direct costs might be classified as indirect costs under different circumstances, it is particularly important to assure that the proposed treatment is proper. To identify any proposed other direct cost that apparently should be classified as an indirect cost, ask questions such as the following:

- Will the proposed cost benefit both the proposed contract and other work?

If the cost will benefit the proposed contract and other contracts, it should not be treated as an other direct cost. Instead it should be treated as an indirect cost.

- Does the offeror customarily treat similar costs as indirect costs under similar circumstances?

If the offeror customarily treats similar costs as indirect costs under similar circumstances, the proposed cost should also be treated as an indirect cost. If the contractor is covered by the Cost Accounting Standards, the cognizant ACO and auditor maintain a copy of the current disclosure statement. This document should describe how similar costs are to be treated.

- Can the accounting system segregate proposed other direct costs from similar indirect costs?

If the accounting system cannot differentiate between the proposed cost and similar indirect costs, the proposed cost should also be treated as an indirect cost. Generally, the cognizant auditor will have conducted either a pre-award or post-award accounting system survey which addresses the contractor's ability to segregate various types of costs and should be consulted for assistance with significant costs.

Identify Any Other Direct Cost That Appears To Duplicate Another Direct Cost. To identify any proposed other direct cost that appears to duplicate another proposed direct cost, ask questions such as the following:

- Does the proposed other direct cost effort duplicate tasks already proposed as part of direct material cost or direct labor cost?

An estimator preparing an estimate of direct labor cost or direct material cost may not know that the same task is being estimated as part of other direct cost. It can be particularly easy for a firm to propose in-house labor and consultant labor to complete the same task.

- Does a cost estimating relationship used to estimate direct material cost or direct labor cost include costs to perform tasks also proposed as an other direct cost?

Costs may normally be proposed using a cost estimating relationship. For example, computer support may be estimated based on the number of engineering hours. However, the unique nature of the proposed contract may require vastly more and different types of engineering computer support. Accordingly, the firm has proposed to purchase outside computer services as an other direct cost. Since the other direct cost will replace the in-house support, the in-house support should not be included in the cost estimate.

Identify any Cost That Does Not Appear Reasonable. To identify any proposed other direct cost that does not appear reasonable, ask questions such as the following:

- Is the proposed other direct cost consistent with the offeror's estimating assumptions?

If any part of the estimate is not consistent with stated estimating assumptions, inquire further to determine if an error was made. For example, if the estimating assumption is that a group of two to four travelers will share a rental car on each trip, proposed travel cost should be calculated consistent with this assumption.

- Is the proposed other direct cost necessary to complete the contract?

Require the offeror to support the need for any other direct cost that does not appear needed to complete contract tasks.

- Has the offeror identified all the other direct costs reasonably required to complete the contract?

If the offeror appears to need additional other direct cost support to complete the contract, question why the cost for that support was not included in the cost proposal.

Identify Costs Which Merit Special Attention. To identify any proposed other direct cost that merits special attention because of high proposed cost or other reasons, ask questions such as the following:

- Is any single other direct cost a large portion of the total cost estimate?

Occasionally, a single estimate will be a large part of the entire estimate. That estimate will normally merit special attention because of the dollars involved.

- Is any other direct cost critical to contract performance?

The offeror's ability to obtain the resources treated as other direct costs may be critical to contract performance. Critical elements merit special consideration to assure that the offeror fully understands contract requirements.

Document Concerns About Other Direct Cost Estimates. To assure that concerns about other direct cost estimates are well documented, ask questions such as the following:

- Have you identified concerns about other direct cost estimates?

If the answer is "yes", document the areas of concern for reference as you perform more in-depth analysis.

- Has the offeror had an opportunity to answer your concerns?

Consider raising these concerns in fact-finding conversations with the offeror. If the problem is an error in the proposal, bring the error to the offeror's attention so that it can be corrected prior to formal discussions.

8.3 Analyzing Cost Estimates

This section identifies points to consider as you analyze other direct cost estimates.

Special Points to Consider in Analysis. Your analysis of other direct costs should parallel your analysis of any direct cost. However, you should concentrate your analysis on the following points:

- Determine if other direct costs are properly proposed in accordance with the offeror's estimating and accounting practices, as well as accounting standards applicable to the contract. If the contractor is CAS-covered, the most recent disclosure statement will describe how various categories of costs are to be treated.

- Determine if the proposed other direct cost is reasonable, considering any points identified for special emphasis.

Develop and Document Your Prenegotiation Position. As you develop and document your prenegotiation position on other direct costs:

- If you accept the offeror's proposed other direct cost, document that acceptance.
- If you do not accept the proposed other direct cost, document your concerns with the proposal and develop your own prenegotiation position for costs covered by the estimate.
- If you can identify information that would permit you to perform a more accurate analysis of the proposed other direct costs, use the available information. Your analysis is not bound by the estimating methods used by the offeror.

8.3.1 Analyzing Special Tooling And Test Equipment Costs

Special Tooling. Special tooling includes jigs, dies, fixtures, molds, patterns, taps, gauges, and all components of these items including foundations and similar improvements necessary for installing special test equipment, and which are of such a specialized nature that without substantial modification or alteration their use is limited to the development or production of particular supplies or parts thereof or to the performance of particular services. Special tooling does not include material, special test equipment, real property, equipment, machine tools, or similar capital items.

Special Test Equipment. Includes single or multipurpose integrated test units engineered, designed, fabricated, or modified to accomplish special purpose testing in performing a contract. It consists of items or assemblies of equipment including foundations and similar improvements necessary for installing special test equipment, and standard or general-purpose items or components that are interconnected and general-purpose items of components are interconnected and interdependent so as to become a new functional entity for special testing purposes. Special test equipment does not include material, special tooling, real property, and equipment items used for general purposes or property that with relatively minor expense can be made suitable for general purpose use.

Determine If the Cost Is Properly Proposed. To determine if the cost of special tooling and test equipment is properly proposed in accordance with the offeror's estimating and accounting practices, as well as accounting standards applicable to the contract, ask questions such as the following:

- Is the proposed tooling or test equipment only usable on the proposed contract or is it general purpose (usable for other products/contracts)?
    - If the tooling or test equipment is usable only for the proposed contract, consider the proposed other direct cost.
    - If the equipment is general purpose and can be used elsewhere, it should be capitalized and depreciated through the appropriate indirect cost account. Through the application of indirect cost rates, each contract will receive its fair share of the depreciation expense. You should not accept any estimate as other direct cost.
- Can the necessary task be performed at a lower total cost (equipment plus labor) with general purpose tooling or test equipment?
- Do not accept special tooling or test equipment as an other direct cost, when general purpose equipment can do the same job at lower total cost. If general purpose equipment will not do the job at a lower total cost, further consider the cost of the special tooling and test equipment.
- *Determine If the Proposed Cost Is Reasonable*. As you determine if the proposed special tooling or test equipment cost is reasonable, ask questions such as the following:
- Is the proposed special tooling or test equipment appropriate for the required period of use?
- This question really deals with the total period that the special tooling or test equipment will be

required. If there are projected follow-on requirements, you may need to look beyond the immediate proposal to determine the total Government need. You will probablyneed technical assistance in making your analysis.

- Does the proposal include appropriate quantities of special tooling and test equipment?
- This question deals with capacity. If the contract calls for a production rate of 100 units per month, and a single tool can only produce 50 per month, then additional capacity is needed. If the contract calls for production of 50 units a month and a single tool will produce 100, the expenditure may be excessive. Support from Government technical personnel can be invaluable in reviewing the capacity of proposed tooling, suggesting different tooling or approaches that can meet the contract requirements, or identifying existing tooling that could augment the proposed tooling and meet contractual requirements at reduced costs.
- Is there Government owned tooling or test equipment available that can be used on a rent-free noninterference basis?
    - If appropriate Government owned tooling or test equipment already exists, consider providing the tooling for contractor use on the proposed contract rather than paying the contractor to acquire new tooling or test equipment. If the Government owned tooling or test equipment is being used by the offeror on other Government contracts, it can be used on the proposed contract provided that use does not interfere with use of thetooling or test equipment by the "owning" contract. Rent-free use on a noninterference basis between Government contracts is a normal and customarypractice.
    - If the required tooling or test equipment is not already available withinGovernment resources, further consider the cost of proposed special tooling or test equipment.
- Is the proposed cost reasonable for the special tooling or test equipmentrequired?
- Proposed special tooling and test equipment costs may include a variety of direct and indirect costs. Analyze the proposed cost just as you would analyze the proposed cost for any separately priced line item of the contract.

8.3.2 Analyzing Computer Service Costs

Computer Service Center Firms often collect in-house computer costs under a service center and charge users for using the computer services. In-house users of the computer services may be completing tasks in direct support of a specific contract requirement or in indirect cost support of company operations.

Accordingly, the service center costs may be charged as direct or indirect costs, depending how the services are used.

Determine If the Cost Is Properly Proposed. To determine if computer service cost is properly proposed in accordance with the offeror's estimating and accounting practices, as well as accounting standards applicable to the contract, you must understand how the offeror collects and allocates computer-related costs. The cognizant Government auditor can be helpful in establishing the appropriateness of the charges as other direct costs.

Determine If the Proposed Cost Is Reasonable. To determine whether the proposed computer service cost is reasonable for contract task requirements, ask questions such as the following:

- Is the amount of the proposed computer effort reasonable for the contract?

If direct computerized effort is not required, you should not accept any part of the proposed other direct cost. If a lower effort is required, the Government pricing position should reflect that adjustment.

- Are the proposed costs based on the computer resources that will actually be used to complete the required tasks?

Many times, offeror personnel will have multiple computer resources available to provide the same type of support. Available resources might include: a central computer service center, a local area network, stand-

alone personal computers, and contract computer services. If the work will be completed in stand- alone personal computers, any other direct computer center charge would be unreasonable.

- Does the selected source offer the best value to the offeror and the Government?

The required computer services may be available from an in-house service center and several outside sources. Each source will likely have different costs and benefits to the offeror and the Government.

- If the offeror proposes to obtain the required service as an interorganizational transfer, has the firm met the associated pricing requirements?

Interorganizational transfers can be based on either price or cost.

8.3.3 Analyzing Professional And Consultant Service Costs

Professional And Consultant Services. Professional and consultant services are services rendered by persons who are members of a particular profession or possess a special skill and who are not officers or employees of the contractor. They are generally acquired to obtain information, advice, opinions, alternatives, conclusions, recommendations, training, or direct assistance, such as studies, analyses, evaluations, liaison with Government officials, or other forms of representation.

Determine If the Cost Is Properly Proposed. To determine if professional and consultant services are properly proposed in accordance with the offeror's estimating and accounting practices, as well as accounting standards applicable to the contract, ask questions such as the following:

- Does the task defined for completion by consultants duplicate a task defined for in-house completion?

An estimator preparing an estimate of direct labor cost may not know that the same task is being estimated for performance by consultants.

- Does a cost estimating relationship used to estimate direct labor cost include costs to perform tasks also proposed for performance by consultants?

A task previously performed by in-house personnel may now be designated for performance by consultants. Without specific adjustment, any direct labor cost estimating relationship developed using cost data that include the cost of performing that task will include that task in direct labor estimates for future contracts.

Determine If the Proposed Cost Is Reasonable. As you determine whether the proposed costs are reasonable for the required professional or consultant services, ask questions such as the following:

- Is the proposed cost reasonable in relation to the service required?

Generally, offerors obtain consultant labor from firms that specialize in providing related services. These firms hire or contract with individuals to work for them and then contract out to firms requiring their services. When there is competition to meet these needs, the offeror can often support the reasonableness of contract labor costs by citing price competition.

- Is the proposed cost necessary and reasonable considering the offeror's capability in a particular area?

If full-time employees are available and capable of performing the required work at a lower cost, question the need for consultants. If consultants are needed, you should still examine any increased cost related to using consultants instead of in-house labor. What was the basis for deciding which type of labor would be used where? The contractor should have performed an analysis in support of selecting the outside consultants over other alternatives.

- What was the past pattern of acquiring such services and what was the cost?

Changes from past practices should be questioned if costs increased as a result of the change.

- Is the service of a type identified as unallowable under Government contracts?

Professional consultant costs are allowable when details of all agreements (e.g., work requirements, rate of compensation, and nature and amount of other expenses, if any) with the individuals or organizations providing the services and details of actual services to be performed are documented.

Professional consultant costs for the following are unallowable:

- Services to improperly obtain, distribute, or use information of data protected by law or regulation.
- Services to improperly influence the contents of solicitations, evaluation or proposals or quotations, or the selection of sources for contract award.
- Services resulting in violation of any law statute or regulation prohibiting improper business practices of conflicts of interest.
- Services performed which are not consistent with the purpose and scope of the services contract or agreement.

8.3.4 Analyzing Travel Costs

Travel Cost. Travel costs include the costs for transportation, lodging, meals, and incidental expenses incurred by contractor personnel on official company business.

Dollar for dollar, travel cost estimates attract more attention than any other element of most cost proposals. Interest continues to increase in this age when travel costs are rapidly increasing and alternative means of communication (e.g., teleconferencing) are becoming more commonplace.

Determine If the Cost Is Properly Proposed. To determine if travel cost is properly proposed in accordance with the offeror's estimating and accounting practices, as well as accounting standards applicable to the contract, ask questions such as the following:

- Will the traveler charge labor effort to a direct or indirect labor account during travel?

Normally, if the traveler's wages during travel are charged to an indirect labor account, the traveler's travel expenses are also charged as an indirect cost. If the traveler's wages during travel are charged direct to a contract, then the traveler's expenses for travel in connection with the contract are generally charged as a direct cost.

- What is the purpose of the travel?

If an employee who normally charges direct to contracts attends a stress management course, the travel expenses will normally be charged against an indirect training account. If an employee who normally charges time to an indirect cost account travels to a Government office to present a contractually-required demonstration, the travel costs will normally be charged to the contract requiring the demonstration.

Determine If the Proposed Cost Is Reasonable. Costs for travel transportation may be based on mileage rates, actual costs incurred, or on a combination thereof, provided the method used results in a reasonable charge. Costs for lodging, meals, and incidental expenses may be based on per diem, actual expenses, or a combination thereof, provided the method used results in a reasonable charge. To determine if the proposed costs are reasonable based on contract requirements, ask questions such as the following:

- Is the proposed travel really necessary?

Sometimes, travel is proposed to meet a contractual requirement on the assumption that the contractor will send someone from the contracting location to the specified location. If the offeror appears to have on-site field representatives who can fulfill the contractual requirement, question whether the travel cost is necessary.

If the contract requires a temporary field office, the proposal may include costs for personnel to travel to the field location and return to the home location at the end of the contract. If so, determine how long the personnel have been assigned to the field location and assess the likelihood that they will leave the site at the conclusion of the contract. Be alert to the possibility that the travel costs are improperly classified (e.g.,

the costs are truly intended to be additional compensation for field personnel).

Can fewer longer trips replace the proposed travel schedule?

A few long trips generally cost less than the equivalent number of days in travel spread over a larger number of short trips. Assess the practicality of videoconferencing, telephone, or internet meetings, etc.

- Can multiple tasks be accomplished on the same trip?

Often contractor personnel can accomplish several tasks in one trip. If there is a separate travel estimate for each task, determine:

- Whether the estimate is predicated on taking a separate trip for each task; and
- Whether the traveling personnel will likely be able to accomplish several tasks during the same trip.
- Is the proposed number of travelers reasonable?

Many trips involve teams of travelers. The offeror must support the need for each traveler, as well as the need for the trip.

- Is the proposed mode of transportation the most likely actual mode of transportation?

This point is best explained with an example. A travel proposal is based on four employees flying to a nearby city using a commercial airline. In reality, the company usually sends employee groups to nearby cities in a single rental car. While the rental car may be an appropriate means of travel, the cost of travel will not be the same as airline travel.

- Do the proposed transportation, lodging, meal rates comply with HARs travel cost restrictions?

Due to the high visibility of contractor travel on Government business, the HARs restricts travel expenses to the same levels that would pertain to Government employees if they were to make the same trip. Remember, the cost principle sets a maximum limit on these expenses. The cost principle does not set a floor below which the contractor cannot go. If travel rates are available to the contractor below those set in the Government travel regulations, you should use those rates as the most fair and reasonable available.

8.3.2 Analyzing Royalty Costs

Royalties. Royalties are fees paid by the user to the owner of a right, such as a patented design or process. In Government contracting, the term includes any costs or charges in the nature of royalties, license fees, patent or license amortization costs, or the like for the use of or for rights in patents and patent applications in connection with performing a contract or subcontract.

Determine If the Cost Is Properly Proposed. To determine if royalty cost is properly proposed in accordance with the offeror's estimating and accounting practices, as well as accounting standards applicable to the contract, ask questions such as the following:

- Does the proposal include information required to identify the royalties included in the proposal?

If a proposal includes royalties totaling more than $250, the proposal should identify the name and address of the licensor, date of license agreement, patent numbers or patent application serial numbers, description of the patented item or process, and related pricing information.

- Has the offeror provided license agreements to support specific claims in connection with the proposed contract?

A copy of the license agreement will normally be necessary to determine proper pricing and Government rights under the agreement.

- Is the proposed royalty specifically identified with the proposed contract?

Do cognizant Government technical, audit, and patent personnel confirm that the proposed costs are directly related to one or more items of the contract. If the costs are indirectly related to a number of the

firm's products, the related costs should be proposed as indirect costs. If the contract items do not benefit from the identified patents, question whether the contract should bear any related expense.

Determine If the Proposed Cost Is Reasonable. As you determine whether the proposed royalty cost is reasonable, ask questions such as the following:

- Do Government technical personnel confirm that the patented design or process is required to complete the proposed contract?

You will normally need technical assistance to determine if the identified process or design is necessary to complete the contract.

- Does the Government possess a license or right to free use of the patent?

If the patented design or process resulted from work on a Government contract, the Government should hold a royalty-free license to use the patent. Consult the Government office with cognizance over patent matters for assistance.

- Has the patent expired or been found to be invalid or unenforceable?

Consult the Government office with cognizance over patent matters for assistance.

- Is there a Government license rate for the required patent?

There may already be a Government license rate established for the required patent. Consult the Government office with cognizance over patent maters for assistance.

- Is the proposed rate otherwise fair and reasonable?

Compare the proposed fee with any royalties that the offeror pays for similar commercial production. Consider the related cost of any possible alternatives. Consult the Government office with cognizance over patent matters for assistance.

8.3.3 Analyzing Preservation, Packaging, And Packing Costs

Preservation, Packaging, and Packing. Each solicitation and contract must describe any necessary preservation, packaging, and packing requirements. These requirements must be adequate to prevent deterioration of supplies and damage due to the hazards of shipping, handling, and storage.

Determine If the Cost Is Properly Proposed. To determine if preservation, packaging, and packing costs are properly proposed in accordance with the offeror's estimating and accounting practices, as well as accounting standards applicable to the contract, ask questions such as the following:

- Does the offeror normally treat the costs of preservation, packaging, and packing as indirect costs under similar circumstances?

If the offeror normally treats preservation, packaging, and packing costs as indirect costs under similar circumstances, the offeror should offer the same treatment for the proposed contract.

- Are the contract preservation, packaging, and packing requirements of the proposed contract unique?

If the preservation, packaging, and packing requirements are different than other contracts with the offeror, the related costs should probably be other direct costs. Determine If the Proposed Cost Is Reasonable. As you determine whether the proposed preservation, packaging, or packing costs are reasonable, ask questions such as the following:

- Does the proposal include adequate information for analysis of preservation, packaging, and packing costs?

The other direct cost proposal should include a description of proposed preservation, packaging, and packing procedures and materials, as well as the per unit/item cost involved.

- Does the proposed cost appear reasonable when compared with costs incurred for similar

packaging?

Government transportation specialists should be able to provide substantial support for your analysis.

8.3.4 Analyzing Preproduction Costs

Preproduction Costs. Preproduction costs, also known as start-up or non-recurring costs, can be characterized as costs associated with the initiation of production under a particular contract or program. Examples of preproduction costs include:

- Preproduction engineering;
- Special tooling;
- Special plant rearrangement;
- Training programs;
- Initial rework or spoilage; and
- Pilot production runs.

Solicitation Requirement. When these costs may be a significant cost factor in an acquisition, consider requiring in the solicitation that the offeror provide:

- An estimate of total preproduction and startup costs;
- The extent to which these costs are included in the proposed price; and
- The intent to absorb, or plan for recovery of, any remaining costs.

Determine If the Cost Is Properly Proposed. To determine if preproduction costs are properly proposed in accordance with the offeror's estimating and accounting practices, as well as accounting standards applicable to the contract, ask questions such as the following:

- Is there a mutual understanding between the offeror and the Government concerning what costs should be proposed as preproduction costs?

This should be clearly described in the solicitation. Note that preproduction costs may include other direct costs examined earlier in this chapter (e.g., special tooling) Assure that the same other direct cost is not included in the proposal more than once.

- Is this cost proposed as an other direct cost in accordance with the contractor's accounting practices?

The proposal must conform with applicable Cost Accounting Standards (CAS) and Generally Accepted Accounting Practices (GAAP).

- Do other estimates of direct and indirect cost, specifically exclude all costs proposed as a preproduction cost?

If this type of cost is not specifically excluded from other categories of direct or indirect cost, the offeror may propose the same cost more than once. Determine If the Proposed Cost Is Reasonable. As you determine whether the proposed preproduction costs are reasonable, ask questions such as the following:

- Are proposed costs reasonable for the required preproduction effort?

In most cases, preproduction costs will include a combination of material and labor. The techniques of analysis are the same as those described in previous sections for direct material and direct labor.

- If appropriate, is there an agreement to defer preproduction costs in whole or in part to subsequent contracts?

Since preproduction costs are nonrecurring costs, the contractor may agree to spread the costs across the total projected Government requirement.

- If a successful offeror has indicated an intent to absorb any portion of these costs, does the contract expressly provide that such costs will not be charged to the Government in any future noncompetitive pricing action?

If a successful offeror has indicated an intent to absorb any portion of these costs, assure that the contract expressly provides that such portion will not be charged to the Government in any future noncompetitive pricing action, either directly or through the indirect rates.

CHAPTER 9: INDIRECT COSTS

9.1 Chapter Introduction

This chapter identifies points that you should consider as you evaluate the rates used to allocate indirect costs to various cost objectives.

Analysis Responsibility. While indirect costs cannot be directly identified with the production or sale of a particular product, they are necessary costs of doing business. Some portion of indirect cost is properly allocable to each contract that benefits from that cost.

Indirect Cost. Two types of costs are typically allocated as indirect costs:

- Costs that cannot practically be assigned directly to the production or sale of a particular product. In accounting terms, such costs are not directly identifiable with a specific cost objective.

For example: The firm rents the plant where hundreds of different products are produced. The rent for that plant cannot be traced to any single product, but none of the products could be made efficiently without the plant. The cost accountants who maintain the general accounting ledgers of the firm support every operation of the firm, but their efforts cannot be traced directly to any single product or contract.

- Direct costs of minor dollar amounts maybe treated as indirect costs if the accounting treatment is consistently applied and it produces substantially the same results as treating the cost as a direct cost.

For example: There is usually no net benefit to the contractor or the Government in trying to track every single washer or rivet to a single cost objective. The cost of such items is commonly treated as an indirect cost.

Indirect Cost Importance in Cost Analysis. While indirect costs are an important consideration in the analysis of every cost proposal, the share of cost that they represent will vary from firm to firm and industry to industry. For example, expect indirect costs to represent a larger share of a cost proposal for heavy equipment manufacture than one for contract services. Manufacturing operations typically require substantial investment in plant and equipment --the very type of spending that generally cannot be directly charged to any one product. Services generally do not require a similar level of investment in plant and equipment.

Composition of Indirect Costs. The term "indirect costs" covers a wide variety of cost categories and the costs involved are not all incurred for the same reasons. The number of indirect cost accounts in a single firm can range from one to hundreds. In general, indirect cost accounts fall into two broad categories:

- **Overhead.** These are indirect costs related to support of specific operations. Examples include:
    - Material Overhead;
    - Manufacturing Overhead;
    - Engineering Overhead;
    - Field Service Overhead; and
    - Site Overhead.
- **General and Administrative (G&A) Expenses.** These are management, financial, and other expenses related to the general management and administration of the business unit as a whole. To be considered a G&A Expense of a business unit, the expenditure must be incurred by, or allocated to, the general business unit. Examples of G&A Expenseinclude:
    - Salary and other costs of the executive staff of thecorporate or home office.
    - Salary and other costs of such staff services as legal, accounting, public relations, and financial offices
    - Selling and marketing expenses

9.2 Identifying Pools And Bases For Rate Development

This section identifies points that you should consider as you identify the bases and pools needed to calculate the rates used to allocate indirect costs to various cost objectives.

- 9.1.1 - Identifying Indirect Cost Pools
- 9.1.2 - Identifying Indirect Cost Allocation Bases

Indirect Cost Allocation Rates. Since indirect costs are not directly related to a single cost objective, how do we know when they should be charged to a particular product? We use indirect cost rates. As a larger share of a contractor's direct effort (e.g., manufacturing) is required to produce a particular product, use of an indirect cost rate will assure that a larger share of the indirect costs that the contractor incurs in support of that direct effort (e.g., costs such as supervision, utilities, and maintenance) is charged to the contract.

Indirect Cost Rate Formula. Indirect cost rates are expressed in terms such as dollars per hour or percentage of cost. Indirect cost rates are calculated for each accounting period by dividing a pool of indirect cost for the period by the allocation base (e.g. direct labor hours or direct labor cost) for the same period.

Indirect Cost Rate =	**Indirect Cost Pool** **Indirect Cost Allocation Base**

Once a rate is established, you can use it to determine the amount of indirect cost that should be allocated to the contract. Simply multiply the rate by the estimated or actual amount of the allocation base in the contract for that period. Contracts with a greater share of the allocation base (e.g., direct labor dollars) will be charged a greater share of the related indirect cost pool (e.g., manufacturing overhead). Contracts with a smaller share of the base will be charged a smaller share of the related indirect cost pool.

9.2.1 Identifying Indirect Cost Pools

Indirect Cost Pool Definition. For each indirect cost rate, identify the ***INDIRECT COST POOL.***

Indirect Cost Rate =	**INDIRECT COST POOL** Indirect Cost Allocation Base

An indirect cost pool is a logical grouping of indirect costs with a similar relationship to the cost objectives. For example, engineering overhead pools include indirect costs that are associated with engineering effort. Likewise, manufacturing overhead pools include indirect costs associated with manufacturing effort.

A properly developed indirect cost pool, should permit allocation of the included indirect costs in a manner similar to the allocation that would occur if the firm allocated each indirect cost separately.

For example: The firm could allocate the labor for maintenance of the building housing the firm's engineers and the electricity for the same building using two different indirect cost rates. Logically, both would be allocated based on the use of engineering services. Since both would use the same or similar allocation base, combining them into a pool (along with other engineering-related indirect costs) simplifies and clarifies the allocation process.

Primary Indirect Cost Pools. The indirect cost pools used to make the final allocation of indirect costs to cost objectives are known as primary pools. The table on the next page lists some of the more common primary pools and types of costs often found in each pool. A typical cost identified in the table with a particular pool (e.g., inbound transportation is identified with material overhead) could be:

- Combined with the related indirect costs into a single indirect cost pool (e.g., a single material overhead pool);
- Combined with some of the related indirect costs into one of several related indirect cost pools (e.g., indirect labor could be combined with one or two related expenses into a single pool).
- Allocated individually.

Remember, every firm's accounting system is different. The examples in the table are only typical; do not regard them as the only correct way to group costs.

Common Primary Cost Pools and Typical Costs Found in Each	
Common Pools	**Typical Costs Found in the Pool**

Material Overhead	• Acquisition (Purchasing) • Inbound transportation • Indirect labor • Employee related expenses (shift & overtime premiums, employee taxes, fringe benefits) • Receiving and inspection • Material handling and storage • Vendor quality assurance • Scrap sales credits • Inventory adjustments
Operations Overhead (e.g., Manufacturing, Engineering, Field Service, and Site Operations)	• Indirect labor and supervision • Perishable tooling (primarily in manufacturing overhead) • Employees related expenses (shift & overtime premiums, employee taxes, fringe benefits) • Indirect material & supplies (small tools, grinding wheels, lubricating oils) • Fixed charges (e.g., depreciation, insurance, rent, property taxes) • Downtime of direct employees (training, vacation pay, regular pay) when not working on a specific contract/job
General & Administrative Expense	• General & executive office • Staff services (legal, accounting, public relations, financial) • Selling and marketing • Corporate or home office • Independent research and development (IR&D) • Bid and proposal (B&P) • Other miscellaneous activities related to overall business operation

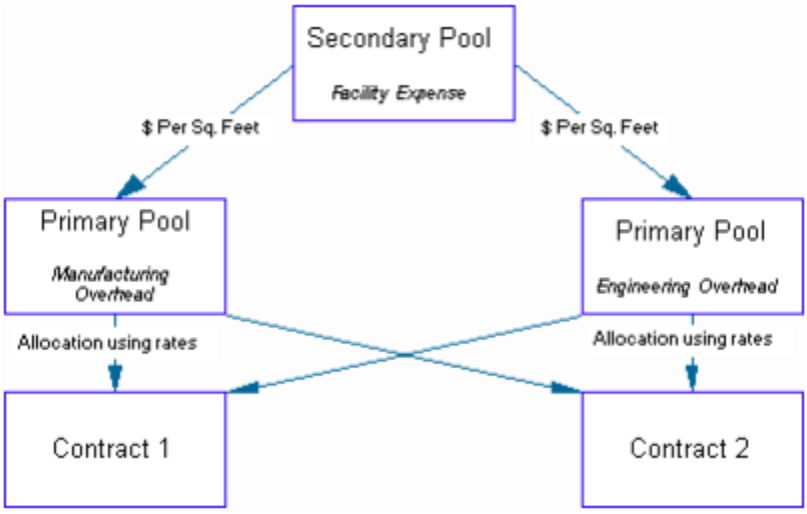
Secondary Indirect Cost Pools. A secondary pool is an intermediate pool that is used to allocate costs to primary pools.

Some indirect costs obviously belong to one specific primary pool. For example, the salary of a manufacturing manager would logically be charged as part of a manufacturing overhead pool. The company president's salary would be part of the general and administrative cost pool. These costs therefore would appear only in the appropriate primary pool.

The proper account for other indirect costs may not be so obvious. For example, a building is shared by manufacturing and engineering. Should facility expenses (e.g., building depreciation, utilities, and maintenance) be charged to engineering or manufacturing? The answer is that both should share the cost based on a causal or beneficial relationship with the cost involved. For example, facilities expenses could be allocated based on the share of available floor space occupied.

A reasonable share of each cost could be separately allocated to the appropriate primary pool, or the related costs could be grouped and allocated together. If the costs are grouped for allocation, the cost grouping is known as a secondary pool.

The figure below depicts the allocation of the expenses related to a shared facility based on the number of square feet occupied by each occupant. If engineering occupies 60 percent of the building, 60 percent of the facility-related expenses will be allocated to the engineering overhead pool. Forty percent will be allocated to the manufacturing overhead pool.

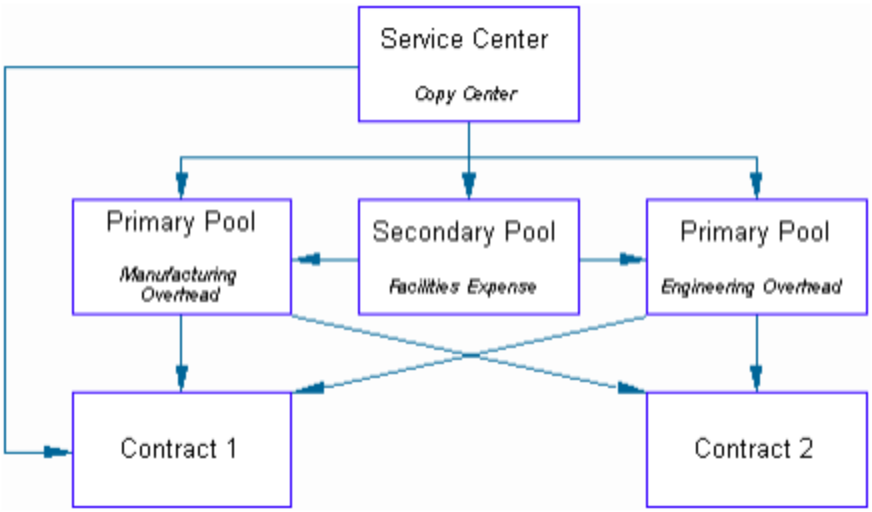


***Service Centers*.** Service centers are unique in that they include costs that can be allocated as a direct cost or an indirect cost depending on the particular circumstances. Primary allocation concerns include identification of:

- The user of the service and
- The purpose of that use.

For example: The cost of a copy center are allocated based on the number of copies reproduced.

- A copy of a manufacturing drawing might be charged to manufacturing overhead.
- A copy of an engineering report might be charged to engineering overhead.
- A copy of the facility manager's weekly calendar might be charged to the facilities secondary pool.
- A deliverable copy of a research report prepared for the Government might be charged as a direct cost.



Remember that the firm must clearly define how service center costs will be allocated. Definition of the circumstances related to each different type of accounting treatment is particularly important. Clear definition will help avoid erroneous double charges that occur when the firm charges a service center cost as a direct cost while charging the same or similar cost as an indirect cost.

Service Center Examples	
• **Copy center** • **Business data processing** • **Photographic services** • **Reproduction services** • **Art services** • **Technical data processing services**	• **Communication services** • **Facility services** • **Motor pool services** • **Company aircraft services** • **Wind tunnels** • **Scientific computer**

9.2.2 Identifying Indirect Cost Allocation Bases

Indirect Cost Allocation Base Definition. For each indirect cost rate, identify the ***INDIRECT COST ALLOCATION BASE.***

$$\text{Indirect Cost Rate} = \frac{\text{Indirect Cost Pool}}{\text{INDIRECT COST ALLOCATION BASE}}$$

An indirect cost allocation base is some measure of direct contractor effort that can be used to allocate pool costs based on benefits accrued by the several cost objectives. Examples of typical bases:

- Direct labor hours;
- Direct labor dollars;
- Number of units produced; and
- Number of machine hours.

The type of base determines whether the indirect cost rate will take the form of a percentage or a dollar rate per unit of measure. The following are some common bases that could be used in manufacturing indirect cost allocation:

Dollars per Direct Labor Hour =	Pool Dollars / Direct Labor Hours
Percent of Direct Labor Dollars =	Pool Dollars / Direct Labor Hours X 100
Dollars per Unit of Production =	Pool Dollars / # of Production Units
Dollars per Machine Hour =	Pool Dollars / Machine Hours

Whatever the allocation base, the larger a contract's share of the allocation base for the accounting period, the larger the contract's share of the related indirect cost.

Selecting a Base. When selecting an allocation base for the indirect cost pool, firms consider the type of indirect costs in the pool and whether the base will provide a reasonable representation of the relative consumption of pooled indirect costs by direct cost activities. Each allocation base should be representative of the breadth of activities supported by the pooled indirect costs. There should be a logical relationship between the pool costs and the allocation base. That is, for each increase in the allocation base, pool costs are also likely to increase.

For example: If the firm's manufacturing operation is labor intensive and the pool is predominantly labor related (e.g., supervisory labor and fringe benefit costs) the contractor will probably select a base related to labor effort for allocating manufacturing overhead costs. If the manufacturing operation is automated with little labor effort, the contractor will probably select a base related to the machinery use (e.g., machine hours).

Common Allocation Bases. The following table represents some of the more common bases and the type of pools that they are typically used to allocate:

Types of Indirect Cost Pools						
Allocation Bases	Manufacturing	Engineering	Field Service	Material	General & Administrative	Secondary Pools
Total Cost Input[1]					●	
Cost of Value-Added [2]					●	
Direct Labor Dollars	●	●	●		●	
Direct Labor Hours	●	●	●		●	
Machine Hours	●					
Units of Product[3]	●					
# of Purchase Orders				●		
Direct Material Cost				●		
Total Payroll Dollars						●

Head Count						●
Square Footage						●

[1] Also referred to as the "Cost of Goods Manufactured" or "Production Cost" during the accounting period. It typically includes all costs except general and administrative expense.

[2] Also referred to as "Conversion Cost." It is the sum of direct labor costs, other direct costs, and associated indirect costs.

[3] Units of Product refers to units of final product produced. It is only an acceptable base when final products are relatively homogeneous and represent a reasonable measure of benefit from the appropriate pool.

9.3 Identifying Rate Inconsistencies Over The Allocation Cycle

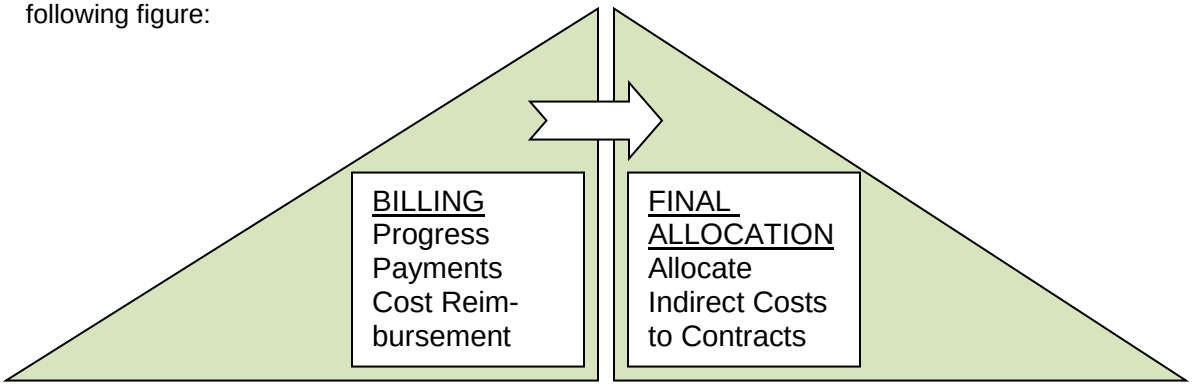
Importance of Accurate Indirect Cost Rate Estimates. Accurate indirect cost rate estimates are essential for effective cost analysis, because actual indirect cost rates will not be known until after the end of the accounting period. By that time, part or all of the contract effort will be complete.

Rate estimates are used for progress payments or cost-reimbursement. You and the contractor may even agree to use estimated quick-closeout indirect cost rates for final pricing of flexibly-priced contracts, before actual rates are known for certain.

Points to Consider. As you review the estimating process used by the contractor in indirect cost rate development:

- Identify apparent rate inconsistencies over the indirect cost allocation cycle.
- Assure that concerns about the inconsistencies are well documented.

Indirect Cost Allocation Cycle. Indirect cost allocation typically follows the cycle depicted in the following figure:



- **Contract Billing.** When a contract involves progress payments or cost reimbursement, Government personnel must monitor contract billing rates to assure that payments or reimbursements based on those rates are reasonable. During each cost accounting period, rates should become more accurate as more actual cost data become available. The procurement officer responsible for determining final indirect cost rates is also responsible for determining contract the billing rates.
- **Final Pricing.** After the cost accounting period is completed, contractors can calculate actual indirect cost rates to determine actual contract cost.
    - For contracts that require final pricing (e.g., fixed-price incentive and cost-reimbursement contracts), the responsible procurement officer must determine final overhead rates for the contract. This determination will be based on the Government's evaluation of the final overhead rate proposal submitted by the contractor.
    - Unfortunately, months or years may be required to complete this process. Under certain conditions set forth in the HARs, you and the contractor may agree to use estimated quick- closeout indirect cost rates for final pricing of flexibly-priced contracts, before actual rates are known for certain.

Rates are Part of a Continuing Allocation Cycle. Remember that that billing rates, and final rates are all part of a continuing indirect cost allocation cycle.

- Billing rate estimates will affect the need for cost adjustment during final contract pricing.
- Final rates can be used to measure the actual allocation of direct cost to a particular cost objective. In addition, the data used to support final rates will become part of the data available for estimating forward pricing and billing rates for subsequent accounting periods.

Identifying Inconsistencies in Cost Allocation Cycle Information. As you review the estimating process

used in rate development, identify any inconsistencies regarding the relationship between the proposed rates and related rates in the indirect cost allocation cycle. Ask questions such as the following:

- How does the proposed rate compare with other rates in the indirect cost allocation cycle?

For example, proposed forward pricing rates and billing rates for the same accounting period should be identical or very similar.

- Has rate accuracy consistently improved throughout the allocation cycle?

The relationship between past forward pricing rates and actual rates should provide information on the firm's past estimating accuracy. Billing rates near the end of the accounting period should be close to the actual rates experienced for the period. Quick closeout rates should be comparable to actual rates.

- Does the contractor update rate estimates as more information becomes available?

Indirect cost rates for each accounting period are estimates until actual costs are determined after the end of the period. However, the rates should be updated as more information becomes available. Contractor personnel should be monitoring the indirect rates and the underlying budgetary throughout the period. Typically, the contractor will document this monitoring process which can be a valuable source in evaluating whether the rates continue to be reasonable as events and conditions become known.

9.4 Reviewing The Rate Development Process

Points to Consider. As you continue to review the estimating process used by the contractor in indirect cost rate development:

- Identify apparent weaknesses in the indirect cost rate estimating process.
- Assure that concerns about the estimating process are well documented.

Review Information on the Steps Used to Estimate Indirect Cost Rates. Initial indirect cost rate estimates for a particular accounting period are generally developed before the period begins. In fact, contractors pricing long-term contracts are frequently required to forecast rates three to five years into the future. Rate estimates should be updated as more information becomes available, both before and during the accounting period to which the rate applies.

Review information submitted by the offeror regarding the steps used to estimate indirect cost rates for each accounting period. While the exact process will vary from firm to firm, the general process should follow four steps:

- **Estimate Sales Volume for the Period** -- the total goods and services that the firm expects to sell to ALL customers during each forecast period (e.g., fiscal year of the firm).
- **Estimate Indirect Cost Allocation Bases for the Period** -- the measures of direct contractor activity that will be used to allocate pool costs based on the benefits accrued by the several cost objectives. Measures can take the form of dollars, hours, or any other appropriate measure.
- **Estimate Indirect Cost Pools for the Period** -- logical groupings of indirect costs with a similar relationship to the cost objectives.
- **Estimate Indirect Cost Rates for the Period** -- divide each indirect cost pool by the appropriate allocation base.

Review Information on Estimated Sales Volume for the Period. The starting point for any indirect cost rate estimate should be a sales forecast for the accounting period. An accurate estimate of volume is essential to estimating indirect cost rates, because indirect cost pools are typically composed primarily of fixed and semi-variable costs. As fixed costs and the fixed component of semi-variable costs are spread over more and more direct effort, indirect cost rates will decline. As a result, lower sales volume estimates will result in higher rates, and higher volume estimates will result in lower rates. Logically, contractors normally prefer to conservatively estimate business volume, so as not to under estimate cost. However, if the contractor is too conservative, the result may be unreasonably high indirect cost rates.

For a manufacturer, estimators will consider the production and sales for each product line. For services, estimators will consider the number of contracts that the firm expects to be awarded and the effort required to complete each contract. Separate forecasts are developed for each accounting period (normally one year).

As you review the offeror's sales estimate, ask questions such as the following:

- Is the sales forecast used for estimating indirect cost rates based on the best information available?

Estimates made prior to the beginning of the accounting period may be based on relatively speculative data. However, estimates should become firmer as more detailed plans are formulated for the period. Estimates should become firmer still as actual sales data for the period become available.

- Does the sales forecast consider all work likely to benefit from the indirect cost pool?

To produce accurate rates, forecasts **must** include **all** work projected to benefit from the indirect cost pool during the accounting period. Estimates should include all work that is on contract, options that may be exercised, proposals with a high probability of success, solicitations in hand, and other anticipated customer requirements.

Review Information on Estimated Indirect Cost Allocation Bases for the Period.

Next, the firm should translate the sales volume forecast into production or contract performance schedules. Given the projected schedules, the estimator can forecast total direct effort associated with operations during each forecast period. Estimates of the direct effort will include estimates of the direct labor and material requirements for the period and the allocation base for each indirect cost rate.

Cost or pricing data submissions require that the proposal state how the offeror computed and applied indirect costs, including cost breakdowns, and showing trends and budget data, to provide a basis for evaluating the reasonableness of proposed rates.

That information should include:

- An estimate of the size of the allocation base.
- An explanation of how the allocation base was estimated.
- The date that the allocation base estimate was developed.
- Data on the historical trends in the allocation base.
- An explanation of any significant differences between the historical, proposed, and budgeted dollar values of the allocation base.

As you review the contractor's indirect cost allocation base estimate, ask questions such as the following:

- What is the relationship between the estimated indirect cost allocation base and the estimated sales volume?

Make sure that you understand the relationship as described by the contractor. Document any unexplained differences between the relationship described by the contractor and observed historical relationships for further analysis.

- Are there any differences between the proposed indirect cost allocation base and related budget estimates?

Many times, the estimated indirect cost allocation base is different than the internal budget for the same category of cost. The firm may state that it wants to challenge managers and hold the difference in reserve. Make sure that you understand the contractor's rationale, as well as the realism of any differences between current estimates and historical trends.

- Have past differences between allocation base estimates and actual allocation bases for the same period been adequately explained?

Look for patterns such as consistent underestimation of the allocation base.

- Are the data used to develop the allocation base estimates accurate, complete, and current?

By law, all cost or pricing data must be accurate, complete, and current. Information other than cost or pricing data should also be up to date. In particular, you should carefully review any allocation base involved in any allegations of defective pricing.

- Did the cognizant auditor or administrative procurement officer question any of the indirect cost allocation base estimates prepared by the contractor?

Because indirect cost pools apply across a broad spectrum of contracts, the cognizant auditor and administrative procurement officer (when one is assigned) are normally most familiar with the factors affecting estimates.

Review Information on Estimated Indirect Cost Pools for the Period. Given the estimated volume of work to be performed, the firm should next estimate the likely size of each indirect cost pool. As described above, indirect cost pools are typically composed primarily of fixed and semi-variable costs. As volume increases, variable indirect costs will increase. However, the indirect cost rate will normally decrease because the fixed portion of the pool will be spread over a larger volume.

As with the allocation base, the offeror must provide adequate supporting documentation. That documentation should include the following information:

- The estimated dollar value of the pool.
- An explanation of how the pool was estimated.
- The date that the pool estimate was developed.
- Data on historical trends in the pool.
- An explanation of any significant differences between the historical, proposed, and budgeted dollar values of the pool.

As you review the contractor's indirect cost pool estimate, ask questions such as the following:

- What is the relationship between the estimated indirect cost pool and the estimated sales volume?

Make sure that you understand the relationship as described by the contractor. Document any unexplained differences between the relationship described by the contractor and observed historical relationships for further analysis.

- What is the relationship between the estimated indirect cost pool and the estimated allocation base?

Make sure that you understand the historical trends in the relationship between the indirect cost allocation base and the indirect cost pool. You can use this relationship to identify significant changes in the estimated rate structure. Document any unexplained differences between the historical relationship and the proposed rates for further analysis.

- Are there any differences between the proposed indirect cost pool and related budget estimates?

Make sure that you understand the contractor's rationale, as well as the realism of any differences between current estimates and historical trends.

- Have past differences between indirect cost pool estimates and actual pools for the same period been adequately explained?

Look for patterns such as consistent overestimation of the pool. Document any unexplained differences for further analysis.

- Did the contractor account for anticipated unallowable expenses in the proposed indirect cost pool?

Unlike direct costs, total pool expenses are more likely to include unallowable expenses described in HARs Cost Principles. Typically, contractors have processes in place to identify unallowable expenses as they are incurred, as well as after the accounting period through a "scrubbing" process. Development of the indirect cost pool occurs prior to the scrubbing process, so the contractor will need to estimate a reasonable amount of unallowable expenses and remove them from the rate calculation.

- Are the data used to develop the indirect cost pool estimates accurate, complete, and current?

By law, all cost or pricing data must be accurate, complete, and current. Information other than cost or pricing data should also be up to date. In particular, you should carefully review any cost elements involved in any allegations of defective pricing.

- Did the cognizant auditor or administrative procurement officer question any of the indirect cost pool estimates prepared by the contractor?

Review Information on Indirect Cost Rate Estimates for the Period. When the indirect cost allocation base and the indirect cost pool estimates have been completed, the only task remaining is to divide the estimated pool by the estimated allocation base to establish the indirect cost rate.

The table below presents rate forecasts for the next three years. Note that the base and pool estimates for material, engineering, and manufacturing, become the estimate of total cost input, the base for the G&A expense rate.

Table 9T.1

3-Year Indirect Cost Rate Estimates			
Estimate	20X7	20X8	20X9
Sales Estimate	1,000 Units	1,500 Units	1,300 Units
Direct Material	$ 14,145,921	$ 17,857,300	$ 14,762,049
Material Overhead	$ 1,361,000	$ 1,562,358	$ 1,564,992
Engineering Direct Labor	$ 1,582,300	$ 1,596,105	$ 1,669,141
Engineering Overhead	$ 1,023,500	$ 1,002,525	$ 1,060,045
Manufacturing Direct Labor	$ 1,467,200	$ 1,910,450	$ 1,811,992
Manufacturing Overhead	$ 3,679,850	$ 4,250,150	$ 4,292,500
Total Cost Input	$ 23,259,771	$ 28,178,888	$ 25,160,719
G&A Expense	$ 4,426,381	$ 4,875,614	$ 4,566,581
Total Cost	$ 27,686,152	$ 33,054,502	$ 29,727,300
Material Overhead Rate (With Direct Material Cost Base)	9.60%	8.70%	10.60%
Engineering Overhead Rate (With Engineering Direct Labor Cost Base)	64.70%	62.80%	63.50%
Manufacturing Overhead Rate (With Manufacturing Direct Labor Cost Base)	250.80%	222.50%	236.90%
G&A Expense Rate (With Total Cost Input Base)	19.00%	17.30%	18.10%

Normally, you should expect more detail in support of rate calculations.

Note that the **20**X7 Manufacturing Overhead and G&A Expense examples on the following pages provide a breakdown of both the indirect cost allocation base and the indirect cost pool, including historical data to facilitate trend analysis. Any contractor should be able to provide you with this level of data along with detailed rationale for rate projections. Most contractors will provide you with substantially more detailed data. Assure that any data submitted meets solicitation/contract requirements.

As you review the contractor's rate calculation and the overall data submission, ask questions such as the following:

- Has the contractor's estimating system been disapproved by the Government?

An inadequate estimating system increases the risk that the system will not provide an adequate cost estimate. Review the condition to determine the extent of the potential impact, if any, on the development of the price proposal.

- Does the overall data submission comply with the requirements of HRS/HARs and the solicitation?

Any data submission that does not meet HRS/HARs or solicitation/contract requirements deserves special attention during cost analysis.

Table 9T.2

Manufacturing Overhead Rate History and Projection					
	Account Title	Actual 20X4	Actual 20X5	Actual 20X6	Projected 20X7
POOL	Salaries & Wages				
	Indirect Labor	1,338,330	1,236,259	1,395,245	1,443,095
	Additional Compensation	80,302	75,490	83,950	88,000
	Overtime Premium	13,214	15,744	11,296	14,500
	Sick Leave	65,575	64,717	67,742	72,130
	Holidays	79,164	82,041	83,006	86,080
	Suggestion Awards	310	450	423	500
	Vacations	140,272	130,223	147,891	153,300
	Personnel Expenses				
	Compensation Insurance	25,545	24,544	26,304	28,500
	SUTA/FUTA[1]	50,135	46,762	52,692	51,500
	FICA/Medicare	70,493	65,990	73,907	77,850
	Group Insurance	153,755	143,670	161,401	169,130
	Travel Expense	11,393	9,636	12,725	13,900
	Dues & Subscriptions	175	175	175	175
	Recruiting & Hiring	897	431	574	250
	Employee Relocation	4,290	3,891	3,562	4,400
	Employee Pension Fund	25,174	25,062	26,350	28,500
	Salaried	62,321	58,132	65,497	68,700
	Training, Conferences, & Technical Meetings	418	407	539	457
	Educational Loans & Scholarships	400	400	400	400

	Supplies & Services				
	General Operating	495,059	475,564	509,839	525,000
	Maintenance: Building	9,102	8,640	12,318	15,700
	Stationary, Printing, & Office Supplies	23,052	21,530	24,125	25,500
	Material O/H on Supplies	56,566	49,305	62,071	62,500
	Maintenance: Office Equipment	9,063	6,673	10,875	12,000
	Rearranging	418	2,128	3,523	3,600
	Other	3,314	3,198	2,635	2,500
	Heat, Light, & Power	470,946	446,971	489,123	507,200
	Telephone	32,382	30,414	33,874	35,000
	Fixed Charges				
	Depreciation	187,118	178,625	175,641	181,850
	Equipment Rental	7,633	7,633	7,633	7,633
	Total Pool	3,416,816	3,214,705	3,545,336	3,679,850
BASE	Manufacturing Direct Labor Cost				
	Assembly Labor	934,444	898,780	950,432	999,700
	Fabrication Labor	233,071	225,950	253,999	258,100
	Inspection Labor	173,372	180,928	203,500	209,400
	Total Base	1,340,887	1,305,658	1,407,931	1,467,200
RATE	**Manufacturing Overhead Rate**	**254.8%**	**246.2%**	**251.8%**	**250.8%**[2]

[1] SUTA is State Unemployment Tax Allowance. FUTA is Federal Unemployment Tax Allowance.

[2] Projected 20X7 Rate of 250.8% referenced back to Table T9.1: 3-Year Indirect Cost Rate Estimates

TABLE T9.3

General & Administrative Expense Rate History and Projection

	Account Title	Actual 20X4	Actual 20X5	Actual 20X5	Projected 20X7
POOL	Salaries & Wages				
	Indirect Labor	1,407,100	1,426,042	1,458,724	1,460,500
	Additional Compensation	125,431	120,410	152,691	155,000
	Overtime Premium	4,883	-	5,069	5,000
	Sick Leave	34,875	33,262	32,937	32,500

	Holidays	49,962	49,260	50,013	49,500
	Suggestion Awards	240	402	225	250
	Vacations	80,637	79,260	81,398	82,525
	Personnel Expenses				
	Compensation Insurance	1,025	902	1,103	1,200
	SUTA/FUTA	22,465	21,526	23,591	23,600
	FICA	31,419	28,620	31,519	32,000
	Group Insurance	29,008	28,942	29,226	29,300
	Travel Expense	62,513	70,001	64,987	67,000
	Dues & Subscriptions	2,375	2,210	2,119	2,500
	Recruiting	1,378	902	1,075	1,250
	Employee Relocation	566	2,125	1,974	1,500
	Employee Pension Fund:	33,097	31,625	34,123	35,000
	Salaried Hourly	17,632	15,260	17,956	18,500
	Training, Conferences, &	7,003	8,102	7,536	7,500
	Technical Meetings				
	Courtesy Meal Expense	6,238	6,124	5,436	7,000
	Educational Loans & Scholarships	1,392	624	1,525	1,500
	Supplies				
	Operating	2,010	1,862	1,724	2,000
	Maintenance - Building	411	4,262	856	750
	Stationary, Printing, & Office Supplies	32,515	27,640	33,209	33,500
	Postage	1,651	2,316	2,056	2,100
	Material O/H on Supplies	1,732	1,710	1,634	1,980
	Maintenance - Equipment	938	950	983	1,000
	Other	15,829	18,216	16,982	17,500
	Public Utilities				
	Telephone	59,105	63,142	61,372	65,000
	Heat, Light, & Power	237,512	211,403	241,298	245,000

	Miscellaneous Income & Expense				
	Legal & Auditing	16,714	18,260	10,945	15,000
	Professional Services	21,197	24,000	23,791	22,500
	Patent Expense	18,466	17,620	9,084	10,000
	Public Relations	12,155	14,670	14,172	15,000
	Interdivisional Transfers				
	At Cost	(48,243)	-	-	-
	Corporate Expense				
	Headquarters	1,556,956	1,467,024	1,673,824	1,700,000
	Fixed Charges				
	Insurance Property	9,820	9,926	10,930	11,000
	Insurance Inventories	4,024	4,862	4,543	4,500
	Franchise Tax	268,495	260,126	246,624	265,000
	Rent - Equip	1,426	1,426	1,426	1,426
	Total Pool	4,131,952	4,075,014	4,358,680	4,426,381
	Total Cost Input				
BASE	Engineering OH Expense	1,025,345	952,614	1,153,612	1,023,500
	Engineering Direct Labor	1,385,765	1,446,420	1,579,595	1,582,300
	Manufacturing OH Expense	3,416,816	3,214,705	3,545,336	3,679,850
	Manufacturing Direct Labor	1,340,887	1,305,658	1,407,931	1,467,200
	Materials OH Expense	1,234,456	1,205,621	1,296,179	1,361,000
	Direct Materials	13,056,987	13,042,160	13,484,836	14,145,921
	Total Base	21,460,256	21,167,178	22,467,489	23,259,771
RATE	**G&A Rate**	**19.30%**	**19.30%**	**19.40%**	**19.00%**[1]

[1] Projected 20X7 Rate of 19.00% referenced back to Table T9.1: 3-Year Indirect Cost Rate Estimates

9.5 Analyzing Proposed Rates

Caution for Indirect Cost Rate Analysis. When you analyze indirect cost rates, do not fall into the trap of looking at a rate and immediately determining that it is too high or too low without analysis of the indirect cost allocation base and indirect cost pool. A rate of 400 percent can be reasonable and a rate of 10 percent can be unreasonable depending on the type of allocation base, reasonableness of allocation base estimates, types of costs in the pool, reasonableness of the pool cost estimates, and the overall effect on total cost. Also avoid the trap of assuming that a rate for one firm is necessarily a good yardstick for evaluating the rates of other firms in the same industry and/or of the same size.

Steps for Indirect Cost Rate Analysis. There are six general steps that you should follow as you analyze indirect cost rate estimates:

- Develop an analysis plan.
- Identify unallowable costs.
- Analyze the indirect cost allocation base estimate.

- Convert the indirect cost allocation base and the indirect cost pool to constant-year dollars.
- Analyze the base/pool relationship.
- Develop and document your pricing position.

Develop an Analysis Plan. Develop a plan that tailors your in-depth indirect cost analysis efforts to areas that demonstrate the greatest cost risk to the Government. Unless required by agency or local procedures, the plan need not be in writing, but it should consider the risk to Government in terms of dollars involved and probability that the rates developed by the contractor are reasonable estimates of actual indirect cost rates.

- Did your review of the indirect cost allocation cycle identify any inconsistencies in the relationship between related rates?

Inconsistencies in the relationship between the proposed rates and related rates in the indirect cost allocation cycle may indicate that the offeror is not properly updating and reevaluating rates throughout the cycle.

- Did your review of the indirect cost rate estimating process identify any apparent weaknesses?

Any apparent weaknesses in the estimating process increases the cost risk to the Government. Normally, you should increase your analysis efforts in any areas with identified weaknesses.

- Have the offeror's estimates been accurate in the past?

Any contractor can incorrectly estimate an indirect cost rate. However, if past rates have been poor estimates of actual indirect costs, the risk to the Government is greater than it is in situations where past estimates have been quite accurate. As you plan, consider both the size and the consistency of the overestimates.

For example: The following table examines the accuracy of historical rate estimates made in the year prior to the rate period:

Year Rate Projection Made	Rate Projected For	Projected Rate	Actual Rate	Subtract Actual Rate From the Projected Rate
20X5	**20**X6	259.1%	254.8%	4.3%
20X4	**20**X5	256.3%	251.8%	4.5%
20X3	**20**X4	260.0%	254.8%	5.2%

Note that the company overestimated this indirect cost rate in every year. The average overestimate was 1.8 percent, calculated as follows:

If all company contracts during those three years were priced using the company estimated rate, customers would have been charged an average of $101.80 for every $100 in actual costs.

- How many dollars are at risk?

Consider the cost of analysis and potential cost savings from the analysis. For example, it would make little sense to invest $30,000 in the analysis of a $20,000 indirect cost estimate.

- How dependent is the estimated indirect cost pool on the historical costs?

Some contractors base their estimate almost entirely on the volume of indirect expenses that were incurred in prior accounting periods. To the extent that the estimate is based on actual costs, you should assess the reliability of the contractor's accounting system, particularly fundamentals such as the ability to

segregate direct and indirect expenses.

When historical costs figure prominently in the estimate, determine if reasonable adjustments were made to reflect anticipated changes to future operations.

- Does the indirect cost pool include a substantial amount of fixed cost?

As the percentage of fixed indirect costs increases, the risk associated with inaccurate allocation base estimates also increases. When a relatively high percentage of indirect costs are fixed, the indirect cost rate can change dramatically with any change in the allocation base. When most indirect costs are variable, changes in the allocation base will have a less dramatic effect on the rate.

Identify Unallowable Costs. Costs that are expressly unallowable or mutually agreed to be unallowable must be identified and excluded from any proposal, billing, or claim related to a Government contract. When an unallowable cost is incurred, any cost related to its incidence is also unallowable.

Contractors must identify unallowable indirect costs whenever indirect cost rates are proposed, established, revised, or adjusted. The detail and depth of records required as rate support must be adequate to establish and maintain visibility of the indirect cost.

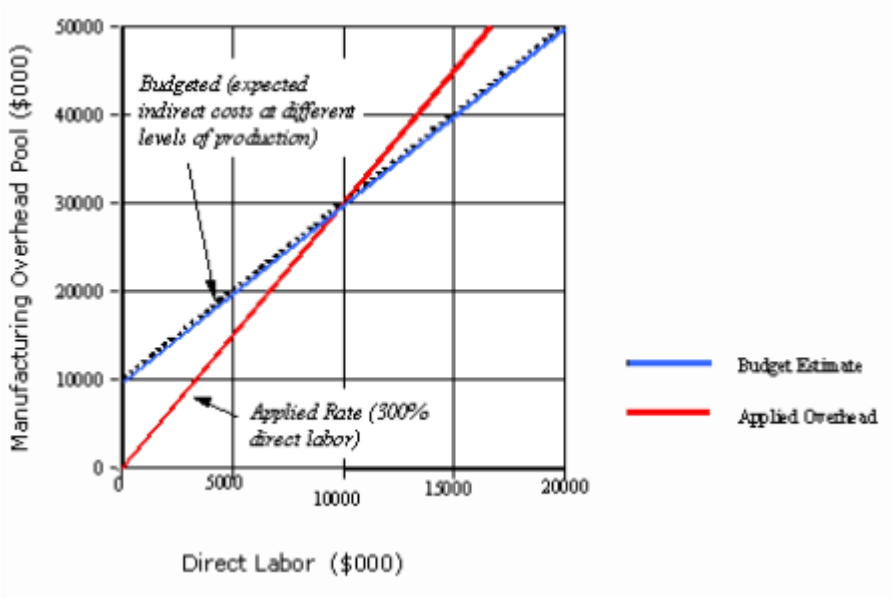
Proper identification of unallowable indirect costs is essential to assure proper treatment in indirect cost rate analysis:

- Unallowable costs must be removed from any indirect cost pool estimate, because Government contracts cannot include unallowable costs. In evaluating the reasonableness of the contractor's adjustment, you should compare the proposed unallowable adjustment to the historical adjustments.
- When allocation base estimates include unallowable costs, the unallowable costs must be considered in Government rate projections to assure proper allocation of costs across all cost objectives.

Consider the following tests for cost allowability identified in the following table as you perform your analysis:

Points to Consider When Analyzing Indirect Cost Allowability	
If:	Then:
The proposed indirect cost pool dollar amount is not reasonable	Reduce the dollar amount of the indirect cost pool to reflect a more reasonable dollar value for that item.
The proposed cost should have been treated as a direct cost (either against the proposed contract or another contract)	Subtract that cost from the total dollar value of the indirect cost pool, and ensure the cost is directly charged to the proper contract.
The cost belongs in a different indirect cost pool.	Subtract that cost from the proposed indirect cost pool and add it to the dollar value of the correct pool.
The same cost is also represented in another indirect pool, as a direct cost, or as part of an estimating factor (e.g., a packaging or obsolescence factor)	Develop your pricing position recognizing the proposed cost in the area where the cost should be recognized and deleting it in the area where it should not be included in the proposal.
The proposed cost is not properly allocable, in part or in whole, to the pool under GAAP	Reallocate the cost in a manner that is consistent with appropriate GAAP requirements.
The proposed cost is not allowable, in part or in whole, under the FAR cost principles	Reduce the dollar amount of the indirect cost pool commensurably.

Analyze the Allocation Base Estimate. The rate allocation base should be selected so as to permit allocation of the indirect cost pool to the various cost objectives on the basis of benefits accruing to each cost objective. The size of the estimate is important because most indirect cost pools include fixed costs. As the size of the base increases, the rate will decrease because the fixed expenses are being spread over a larger base. As the size of the base decreases, the rate will increase because the fixed expenses are being spread over a smaller base. The result of an inaccurate estimate can be demonstrated through the use of the following figure:



The Applied Overhead line represents the negotiated indirect cost forward pricing rate (300% of direct labor dollars). The Budget Estimate line represents the firm's forecast of the pool at different levels of production. Note the following characteristics of the two lines:

- The Applied Overhead line passes through the origin, because indirect costs can only be charged if product is produced and sold. (300% of nothing equals nothing.)
- The Budget Estimate line has a positive intercept at $10 million. In other words, Manufacturing Overhead includes $10 million in fixed costs.
- The two lines intersect at the direct labor estimate of $10,000,000 for the year-the point at which a 300% rate would recover the budgeted $30,000,000 in indirect costs.

However, if the base is anything other than $10 million, use of the 300 percent rate will not equal the budgeted indirect cost.

If the base were actually $5 million at the end of the period, the actual indirect cost should be $20 million (according to budget estimates). If indirect costs for all contracts had been estimated using the 300 percent rate, only $15 million would be applied (charged) to the contracts. Indirect cost would be **under-applied** by $5 million ($20 million - $15 million). If the contracts were all firm fixed-price, that $5 million would come out of the contractor's profits.

If the base were actually $15 million at the end of the period, the actual indirect cost should be $40 million (according to budget estimates). If indirect costs for all contracts had been estimated using the 300 percent rate, $45 million would be applied to the contracts. Indirect cost would be **over-applied** by $5 million ($45 million - $40 million). If the contracts were all firm fixed-price, the result would be $5 million in additional profit.

When a contract is performed over several accounting periods, analyze the indirect cost allocation base for each rate for each accounting period covered by the contract. Consider questions such as the

following as you conduct your analysis:

- Did the offeror use the correct base period (e.g., one year)?

The base period for allocating indirect costs is the cost accounting period during which such costs are incurred and accumulated for distribution to work performed during that period. Generally, the base period is the contractor's fiscal year. A shorter period may be appropriate:

- For contracts in which performance involves only a minor portion of the fiscal year,
- When it is general practice in the industry to use a shorter period, or
- During a transitional cost accounting period as part of a change in fiscal year.
- Does the indirect cost allocation base include all costs associated with that base during the accounting period, whether allowable or not?

Remember that unallowable costs must be excluded from any proposed indirect cost pool. However, all costs must be included in the base -- even the unallowable costs. For example, unallowable costs must be excluded from a manufacturing overhead pool. However, if manufacturing overhead is part of the allocation base for another indirect cost account (e.g., G&A expense) the unallowable costs must be added back into the base.

- Will the base result in a fair allocation of the costs in the indirect cost pool?

Indirect costs must be accumulated by logical cost groupings with due consideration of the reasons for incurring such costs. The base should be selected so as to permit allocation of the grouping on the basis of benefits accruing to the several cost objectives. For example, if the pool is largely labor related (such as fringe benefits), the base should be a measure of labor effort, such as direct labor hours or dollars. If the pool is largely machinery related (such as depreciation and maintenance), the base should relate to machinery use, such as direct machine hours.

- When was the base estimate made?

If the offeror is estimating a base for the fiscal year, an estimate made mid-way through the fiscal year is likely to be more accurate than an estimate made at the beginning of the year. Likewise, an estimate made for the next fiscal year should normally be more reliable than an estimate for a period three years in the future.

- Does the sales volume used to estimate the allocation base appear reasonable?

The offeror does not have perfect knowledge of what is going to happen in the future.

- Estimators must consider more than known sales volume for the period in estimate development. Typically, the offeror will consider the following business forecast elements:
- Contracts in hand;
- Options that may be exercised;
- Proposals with a high probability of success (e.g., final proposal revisions);
- Solicitations in hand; and
- Sales forecasts of future customer requirements;
- Each element of the sales volume forecast should be assigned a probability of actual sale. Contracts in hand would be 100 percent. Other estimates would be assigned a lower "win" probability, based on an analysis of the probability of actually making the sale.
- If the firm's sales consist of only a few large Government contracts, place less faith in contractor statistical estimates, and more faith on the best expressions of Government plans. When the total business activity of the firm includes a large number of relatively small orders, give greater credence to statistical projections that appear reasonable, given the available data.
- Does the allocation base estimate appear reasonable for the projected sales volume?

Using historical data and other available information, determine if the proposed allocation base appears reasonable for the estimated sales volume. If you have any questions, seek information from the cognizant auditor or ACO.

- How stable has the allocation base been over time?

Particularly with respect to small businesses that are heavily dependent on a few contracts, the base may be quite unstable. If such a firm loses only one contract, indirect rates on its remaining contracts might skyrocket. That would be particularly significant for proposed cost-reimbursement contracts. You may need to consider contract terms to protect the Government from the risk of unexpected, substantial changes in burden rates.

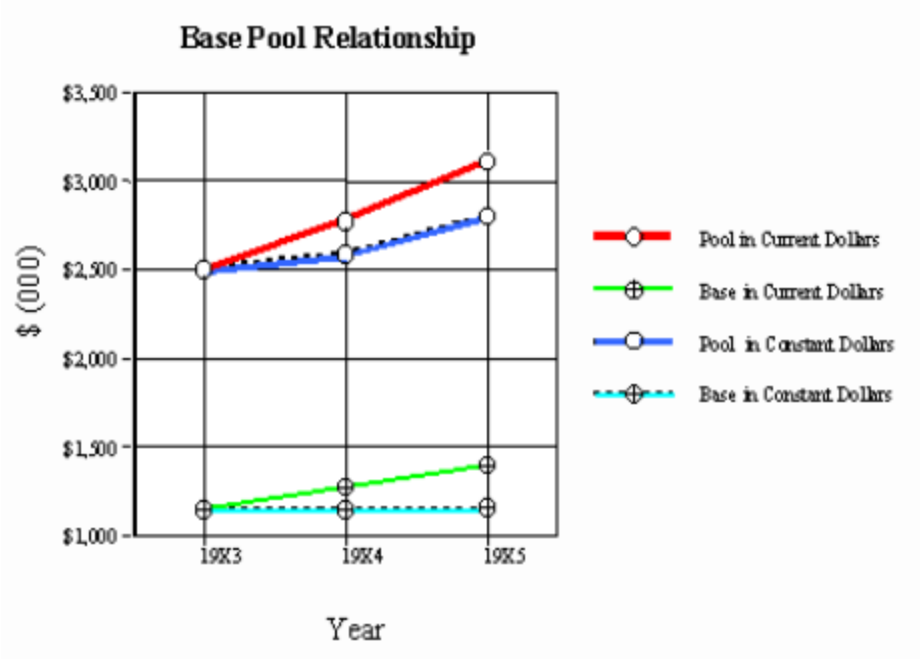
Convert the Base and Pool to Constant-Year Dollars. To analyze the historical relationship between the indirect cost allocation base and the indirect cost pool, you need to consider the changing value of the dollar. Unfortunately, it may be impossible for you to adjust for inflation when you are performing a summary level analysis, because there is rarely a single price index that you can use to adjust an entire indirect cost pool for inflation/deflation. There are typically too many different types of cost and cost behaviors included in indirect cost pools. For example, during a period of general inflation, depreciation will decline unless the contractor acquires new depreciable assets. The price of gasoline for company cars may rise rapidly as the cost of office supplies is declining.

On the other hand, if you are performing a detailed analysis of individual elements of an indirect cost account, you should be able to identify one or more indexes to use in adjusting for the changing value of the dollar. If the contractor has adjusted costs for inflation and the contractor's index number selection is reasonable, use it. If you have any concerns about the contractor's adjustments for inflation, deal with them before proceeding with further analysis.

For example: The following actual costs for **20**X3, **20**X4, and **20**X5 along with projected costs for **20**X6 were taken from a contractor's proposal for an indirect pool:

		20X3 (Actual)	20X4 (Actual)	20X5 (Actual)	20X6 (Projected)
Current- Year Dollars	Pool	$2,502,490	$2,768,851	$3,110,004	$3,510,141
	Base	$1,154,650	$1,270,115	$1,397,115	$1,536,839
	Rate	216.7%	218.0%	222.6%	228.4%
Constant - Year Dollars (Adjusted For Inflation)	Pool	$2,502,490	$2,590,650	$2,799,804	$2,996,000
	Base	$1,154,650	$1,153,900	$1,156,500	$1,155,000
	Rate	216.7%	224.5%	242.1%	259.4%

The following graph depicts the data presented in the above table. The solid lines depict independently the base and pool in current-year (unadjusted for inflation) dollars. The dotted lines depict the same information in constant-year (**20**X3) dollars.

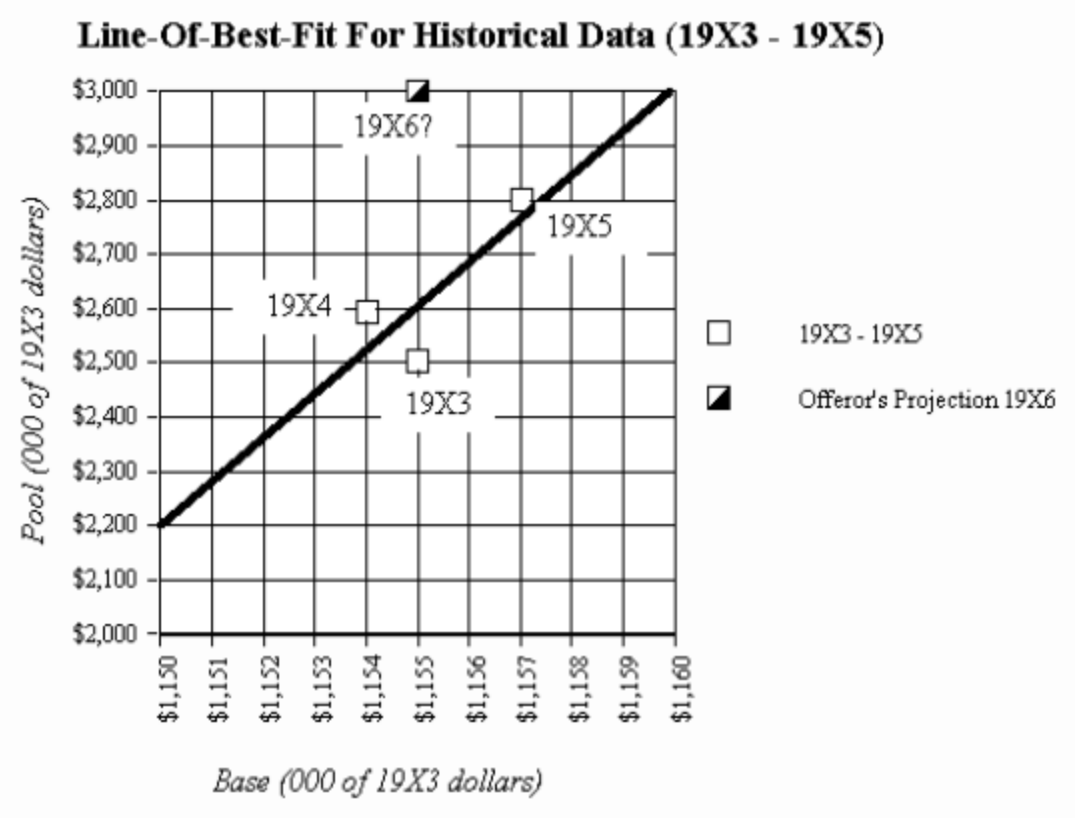


Both the table and the graph show fluctuating base and pool dollars. However, inflation-adjusted data indicate that the inflation-adjusted indirect cost pool is increasing, while the inflation-adjusted allocation base is remaining relatively constant. Based on this analysis, it appears that inflation is masking real substantial growth in the rate.

Analyze the Pool/Base Relationship. Both the allocation base and indirect costs will normally change with increases or decreases in business activity. If you can determine the historic relationship between the allocation base and indirect costs, you can predict what the rate will be at various levels of the allocation base.

If you can use regression analysis to quantify the relationship, you will be able to easily predict the indirect cost pool for any allocation base value.

You can analyze the overall relationship between the allocation base and the indirect cost pool or examine the relationship between individual indirect cost accounts (e.g., office supplies) and the indirect cost allocation base. The following graph demonstrates application of this technique to the data on constant year dollars from the example on the previous page.



As you review the above graph, note that the proposed rate for ~~19~~[**20**]X6 falls well above the value that you would project based on the historical base/pool relationship. When the contractor's estimate is substantially above or below the line, you should challenge the estimate. If the contractor refuses to change its rate but cannot explain the reasons for the difference, consider performing a more in-depth analysis.

As you examine the base/pool relationship, ask questions such as the following:

- Has the composition of the pool or base changed over time?

Be alert to any changes in the composition of either the base or pool. The offeror may have automated. Automation would increase depreciation expense in the indirect cost pool while decreasing any base related to direct labor. Indirect cost rates could increase while combined direct and indirect costs decline.

- Has the indirect cost rate structure changed from the structure used for past contracts?

A change in rate structure could result in costs being moved from one indirect cost pool to another. If your analysis indicates that changes have taken place, ask the offeror for more information on the changes.

- Are changes in the rate consistent with the mix of fixed and variable costs in the indirect cost pool?

If the indirect cost pool is primarily composed of variable costs, the rate should be relatively insensitive to changes in the allocation base that result from changes in sales volume. If the indirect cost pool is primarily composed of fixed costs, the rate should be more sensitive to such changes.

Develop and Document Your Pricing Position. Develop and document your prenegotiation position, using the results of your analysis:

- If you accept the offeror's indirect cost rate estimate, document that acceptance.
- If you do not accept the indirect cost rate estimate, document your concerns with the estimate

and develop your own prenegotiation position for costs covered by the estimate.

- If you can identify information that would permit you to perform a more accurate analysis of indirect cost rates, use the available information. Your analysis is not bound by the estimating methods used by the offeror.

Rate Application. Once you have determined the rate(s) that you will use in contract pricing, you must apply that rate as part of your cost analysis. Using the contractor proposed rates from Section 9.3, the following table presents a contract cost estimate for **20**X7:

Contract Cost Estimate	
Cost Element	Proposed Cost
Material Dollars	$200,000
Material Overhead @ 9.6%	$19,200
Engineering Direct Labor	$5,000
Engineering Overhead @ 64.7%	$3,235
Manufacturing Direct Labor	$75,000
Manufacturing Overhead @ 250.8%	$188,100
Total Input Cost	$490,535
G&A Expense @ 19.0%	$93,202
Total Cost	$583,737

The following process was used to develop the contract cost estimate presented above using the proposed **20**X7 indirect cost rates:

- Estimate direct material and direct labor costs to perform the proposed contract, using appropriate estimating techniques.
- Multiply the proposed Material Dollar base by the Material Overhead Rate (9.6%), resulting in a contract Material Overhead estimate of $19,200.
- Multiply the proposed Engineering Labor Dollar base by the Engineering Overhead Rate (64.7%), resulting in a contract Manufacturing Overhead estimate of $3,235.
- Multiply the proposed Manufacturing Labor Dollar base by the Manufacturing Overhead Rate

(250.8%), resulting in a contract Manufacturing Overhead estimate of $188,100.

- Total the proposed production input costs ($490,535).
- Multiply Total Cost Input by the proposed G&A Expense rate (19.0%), resulting in a contract G&A Expense estimate of $93,202.
- Add the estimated G&A Expense dollars to the Total Cost Input, resulting in a total proposed cost of $583,737.

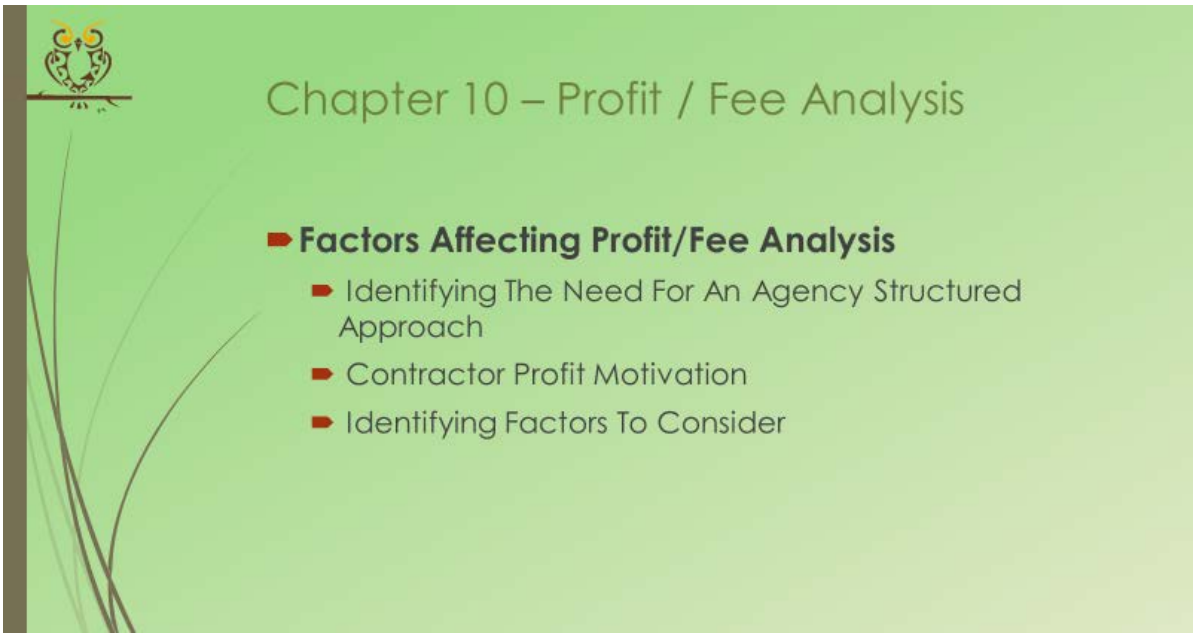
Caution -- Assure that the Indirect Cost Rate Is Applied to the Appropriate Base

Apply each indirect cost rate to the appropriate allocation base. For example, if the direct labor costs from three departments-machining, fabricating, and assembly - are the base for the manufacturing overhead rate, you must multiply the sum total of **all** machining, fabricating, and assembly direct labor costs by the manufacturing overhead rate to estimate manufacturing overhead dollars.

On the other hand, do not apply the manufacturing overhead rate to cost categories not included in the base. You would not apply manufacturing overhead to field service labor cost if field service labor costs were not part of the allocation base used in developing the rate. **Only apply overhead rates to those elements included in the appropriate indirect cost allocation base.**

Sources of Estimate Differences. Differences between the contractor's estimate of indirect costs and your estimate can come from two sources - rate differences and proposed contract allocation base differences. You need to be aware of the sources of cost differences as you prepare for contract negotiations.
Remember that even if you accept the contractor's proposed rate, your indirect cost objective will be lower than the costs proposed, if the base you are using is lower than the contractor's proposed base.

CHAPTER 10: PROFIT / FEE ANALYSIS



- 10.1 – Profit/Fee Analysis - Chapter Introduction
- 10.2 - The Factors Affecting Profit/Fee Analysis
    - 10.2.1 - Identifying The Need For An Agency Structured Approach
    - 10.2.2 - Considering Contractor Profit Motivation
    - 10.2.3 - Identifying Factors To Consider

10.1 Chapter Introduction

This chapter identifies points that you should consider as you analyze contract profit/fee.

Requirement for Profit/Fee Analysis. Profit/fee is the dollar amount over and above allowable costs that is paid to the firm for contract performance.

Most contract prices include either profit or fee, but contract profit/fee analysis is not required unless cost analysis is required to determine contract price reasonableness. When cost or pricing data are required, you must use profit/fee analysis to determine the reasonableness of any profit/fee included in the contract price. When cost information other than cost or pricing data are required, you may need to use profit/fee analysis to determine the reasonableness of any profit/fee included in the contract price.

Actual Profit/Fee May Vary. As you perform your profit/fee analysis, remember that (just as actual costs may vary from estimated costs) the contractor's actual realized profit/fee may vary from negotiated profit/fee, because of such factors as:

- Contract performance efficiency;
- Incurrence of unallowable costs; and
- Contract type.

10.2 Factors Affecting Profit/Fee Analysis

This section presents the general factors that you must consider when analyzing profit/fee as part of a contract cost analysis.

- 10.2.1 - Identifying The Need For An Agency Structured Approach
- 11.1.2 - Considering Contractor Profit Motivation
- 11.1.3 - Identifying Factors To Consider

10.2.1 Identifying The Need For An Agency Structured Approach

Each Agency Must Use a Structured Approach. HRS and HARs only prescribes the factors that must be considered in establishing the profit/fee objective. It does not prescribe specific Government- wide procedures for profit/fee analysis.

10.2.2 Considering Contractor Profit Motivation

Underlying Assumption. The underlying assumption behind Government structured approaches to profit/fee analysis is the belief that contractors are motivated by profit/fee. Structured approaches provide a discipline for ensuring that all relevant factors are considered in developing Government profit/fee negotiation objectives.

Profit/Fee Analysis Goals. It is in the Government's best interest to offer contractor's opportunities for financial rewards sufficient to:

- Stimulate efficient contract performance;
- Attract the best capabilities of qualified large and small business concerns to Government contracts; and
- Maintain a viable industrial base to meet public needs.

Inconsistent Practices Regarding Profit/ Fee Reward. If the Government is to use profit/fee to motivate contractor performance and achieve the above goals, practices primarily intended to reduce profit/fee or diminish the impact of profit/fee analysis are not in the Government's best interest.
The following are practices that are inconsistent with Government profit/fee goals:

- Negotiations aimed at reducing prices by reducing profit/fee without proper consideration of the profit function.
- Negotiation of extremely low profits/fees.
- Use of historical average profit/fee rates without regard to the unique circumstances of the immediate negotiation.
- Automatically applying predetermined profit/fee percentages without regard to the unique circumstances of the immediate negotiation.

Profit/Fee Ceiling. Profit/fee calculations must consider the unique circumstances of the immediate negotiation. However, contract fee cannot exceed regulatory limits that apply to construction contracts as identified in HARS 3-125-13(3) Price Adjustment on Construction Contracts - Limits On Overhead to include Contract Fee:

HARS 3-125-13(3) In determining the adjustment in price to the government resulting from a change, the allowances for all overhead, extended overhead resulting from adjustments to contract time (including home office and branch office overhead) and profit combined shall not exceed the percentages set forth below:

(A) For the contractor, for any work performed by its own forces, twenty per cent (20%) of the cost;

(B) For each subcontractor involved, for any work performed by its own forces, twenty per

cent (20%) of the cost;

(C) For the contractor or any subcontractor, for work performed by their subcontractors, ten per cent (10%) of the amount due the performing subcontractor.

Not more than three-line item percentages for fee and overhead, not to exceed the maximum percentages shown above, will be allowed regardless of the number of tier subcontractors.

10.2.3 Identifying Factors To Consider

Factors That Must Be Considered. While each agency is responsible for developing its own structured approach, the following factors must be considered unless they are clearly inappropriate or not applicable.

Profit/Fee Factor	Provide greater profit / fee opportunity to contractors who:	As you develop your profit/fee objective consider:
Contractor Effort (i.e. complexity of the work and resources required for contract performance)	Undertake contracts requiring a high degree of professional and managerial skill and whose skills, facilities, and technical assets can be expected to lead to efficient contract performance.	**Material acquisition --** managerial and technical effort necessary to obtain materials, given the: • Complexity of items required; • Number of purchase orders/subcontracts awarded and administered; • Need for source development; and • Complexity of purchase orders/ subcontracts.
		Conversion Direct Labor contribution to contract performance, given the: • Diversity of labor types required; and Amount and quality of supervision and coordination needed.

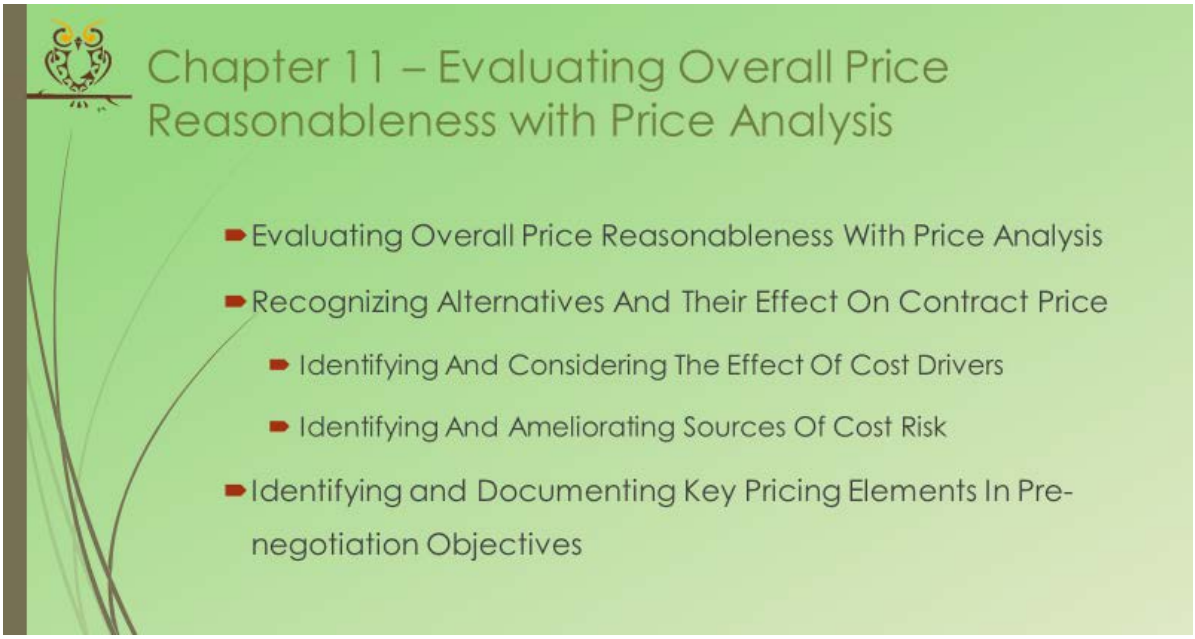
		Conversion-Related Indirect Cost contribution to contract performance: • Give indirect labor the same profit/fee consideration as direct labor. Evaluate other indirect costs on complexity and contribution to contract performance.
		General Management composition and contribution to contract performance: • Give indirect labor the same profit/fee weight as comparable direct labor. • Evaluate management effort on complexity and involvement required.
Cost Risk	Assume a proportionately greater degree of cost responsibility and associated risk.	**Contractor cost responsibility** and associated risk as a result of: • Contract type; and Reliability of the cost estimate in relation to the complexity and duration of the contract task.
State Socioeconomic Programs	Have displayed unusual initiative in support of socioeconomic programs.	Contractor support of programs for: Small businesses; • Small businesses owned and controlled by socially and economically disadvantaged individuals; • Woman-owned small businesses; • Handicapped sheltered workshops; and Energy conservation.

Capital Investments	Have made investments that will facilitate efficient and economical contract performance.	• Contractor investment amount; and Effect of investment on efficient and economical contract performance.
Cost Control and Other Past Accomplishments	Have demonstrated an ability to perform similar tasks effectively and economically.	Contractor has: • Demonstrated ability to perform similar tasks effectively and economically; • Adopted measures to improve productivity; and Other cost-reduction accomplishments that will benefit the Government in follow- on contracts.
Additional Factors	Actively support agency program objectives.	Any additional factors prescribed by your agency for this purpose.

Other Profit/Fee Considerations. The factors identified above form the basis for agency structured approaches to profit/fee analysis. There are other elements that you must consider when developing Government profit/fee objectives.

- **Consider Basic Contract Profit/Fee for Contract Modifications.** You must consider profit/fee objectives based exclusively on the contract action being negotiated. The only exception is the negotiation of contract change or modification.
    - When you negotiate contract modifications, you may use the basic-contract profit/fee rate as your negotiation objective rate if both of the following conditions are met:
        - The contract modification is for the **same type and mix of work** as the basic contract.
        - The modification is of **relatively small dollar value** compared to the total contract.
    - If the contract modification does not meet both of the above conditions, perform a profit/fee analysis to establish the appropriate profit/fee objective.

CHAPTER 11: EVALUATING OVERALL PRICE REASONABLENESS WITH PRICE ANALYSIS



11.1 Chapter Introduction

Having analyzed the individual elements of contract cost and profit/fee, you must now meld the results of those analyses into a single prenegotiation position on contract pricing.

11.2 Evaluating Overall Price Reasonableness With Price Analysis

Price Analysis. Price analysis is the process of examining and evaluating a proposed price to determine if it is fair and reasonable, without evaluating its separate cost elements and proposed profit.

Cost Analysis. Cost analysis is used to evaluate the reasonableness of individual cost elements. When cost analysis is performed, a price analysis shall also be performed to verify that the overall price offered is fair and reasonable. Effective cost analysis provides insight into what it will cost the firm to complete the contract using the methods identified. However, cost analysis does not necessarily provide a picture of what the market is willing to pay for the product involved. For that you need price analysis.

Remember the Pontiac Trans Am example: Suppose that you wanted to procure a custom-made automobile identical to a Pontiac Trans Am. At your request, your neighborhood mechanic agrees to build you such a car. In building the car, the mechanic gets competitive quotes on all the

necessary parts and tooling, pays laborers only the minimum wage, and asks only a very small profit.

How do you think the final price will compare to a car off an assembly line? Probably at least ten times more expensive. Parts alone may be five times more expensive. The entire cost of tooling will be charged to one car. Labor, although cheaper per hour, will likely not be as efficient as assembly-line labor. Is the price reasonable? That decision can only be made through price analysis.

Bases for Price Analysis. Price analysis **always** involves some form of comparison with other prices. As the procurement officer, you are responsible for determining the best price analysis technique(s)and procedure(s)to utilize to assist in determining that the contract price negotiated is fair and reasonable. Moreover, you should use all the techniques for which you have recent, reliable and valid data.

Resolving Differences Between Cost and Price Analysis. If your price analysis does not support the findings of your cost analysis, you must reexamine your cost analysis result. Look for alternatives that will permit contract award at a reasonable price.

Consider alternative methods of contract completion and closely examine contract for possible changes in contract requirements.

If the results of cost analysis and price analysis cannot be reconciled by the close of negotiations, the procurement officer must refer the contract action to a level above the procurement officer. The problem and the resolution should be documented.

11.3 Recognizing Alternatives And Their Effect On Contract Price

Consider contracting alternatives and their effect on contract price as you complete your analysis. Common alternatives affecting contract pricing involve changes in contract cost or cost risk that are related to changes in contract schedule or other performance requirements.

- 11.3.1 - Identifying And Considering The Effect Of Cost Drivers
- 11.1.2 - Identifying And Ameliorating Sources Of Cost Risk

Focus on Contracting Alternatives. Most negotiators assume that contract schedule and other performance requirements cannot be changed under any circumstances. However, you can often negotiate a better deal for all contracting parties if you consider available alternatives.

Team Effort. Take a team approach to the analysis of alternatives. Other members of the Acquisition Team (e.g., technical personnel, the auditor, the price analyst, and contractors) can provide invaluable insight into contract requirements and their effect on contract cost and cost risk.

For example: If you are considering alternatives related to a complex contract proposal, you will generally need support from technical personnel to evaluate the effect of any proposed alternative on contract cost or cost risk. You may also need analytical support from:

- Requiring activity personnel to determine the feasibility of proposed alternatives related to delivery timing, production or performance methods, and materials;
- Technical personnel to consider the effect of proposed alternatives on contract labor and material requirements; and
- The cognizant auditor to consider the effect of the proposed alternatives on labor rates, indirect cost rates, and material pricing.

However, throughout any analysis of alternatives, remember that the procurement officer is ultimately responsible for acquiring required supplies and services from responsible sources at fair and reasonable prices.

Caution About Alternatives. Before bringing a potential alternative (or any other change in terms and conditions) to the negotiation table, you must consider the:

- Costs to the Government affected by the proposed alternative;
- Terms and conditions affected by the proposed alternative (including legal and regulatory requirements); and
- The nature of the discussions.
    - In a non-competitive environment, you may directly negotiate changes in terms and conditions.
    - In competitive procurements, you may need to amend the RFP and notify other offerors as provided in the FAR. Also remember that you must not reveal one offeror's technical solution to another offeror, including:
    - Unique technology;
    - Innovative and unique uses of commercial items; or
    - Any information that would compromise an offeror's intellectual property.

11.3.1 Identifying And Considering The Effect Of Cost Drivers

Identifying Cost Drivers. Cost drivers are those aspects of proposal or contract requirements that if changed would have a major impact on contract price. Possible cost drivers include contract terms and conditions, delivery requirements, or technical requirements. For example:

- If the contract does not allow for use of existing Government property, then offered prices may include costs for the acquisition or fabrication of additional tooling or test equipment.
- If delivery is needed on an expedited basis, then premium charges may be incurred.
- If contract technical requirements call for an expensive process when another less expensive process would meet the needs of end users, then offered prices would be fair but unreasonably high through no fault of the offerors.

Considering the Cost Driver Effect on Contract Price. Work with other members of the Acquisition Team to identify the cost drivers that appear to be affecting contract price in the current acquisition environment. Having identified the factors that appear to be driving contract cost, you can begin reviewing the impact of alternatives. The following scenarios are examples of how you might consider the effect of schedule changes on contract price:

Example 1. Normal delivery time for Item A is six months after receipt of an order at a unit price of $1,000. The requiring activity wants the part in three months at the same price. The offeror can get the part in three months, but only at a premium price of $1,250. In this case, schedule is a cost driver with a shorter delivery schedule resulting in a cost increase.

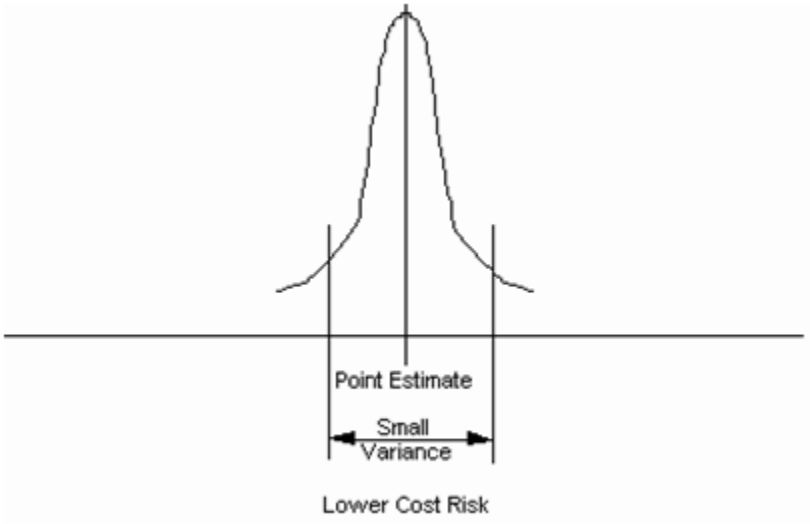
Example 2. The requiring agency has requested delivery of Item B twelve months from today. The offeror has quoted a unit price of $5,000 for the 12-month delivery. At the same time, the offeror has offered to add this Item B requirement to a projected production run. By combining the requirements, a second set- up charge can be avoided, and the part can be purchased for $4,500, but delivery cannot be made in less than 15 months. If the requiring activity cannot accept the 15-month delivery, schedule will be a significant cost driver.

Example 3. The proposal calls for a delivery 36 months after receipt of an order. During the technical analysis, you determined that the offeror's shop loading schedule would allow for delivery in 24 months. The proposed part has been in continuous production for several years and is "well down the improvement curve." The earlier delivery year has significantly lower projected labor rates, and the additional volume would significantly reduce overhead rates. As a result, earlier delivery should actually reduce contract cost.

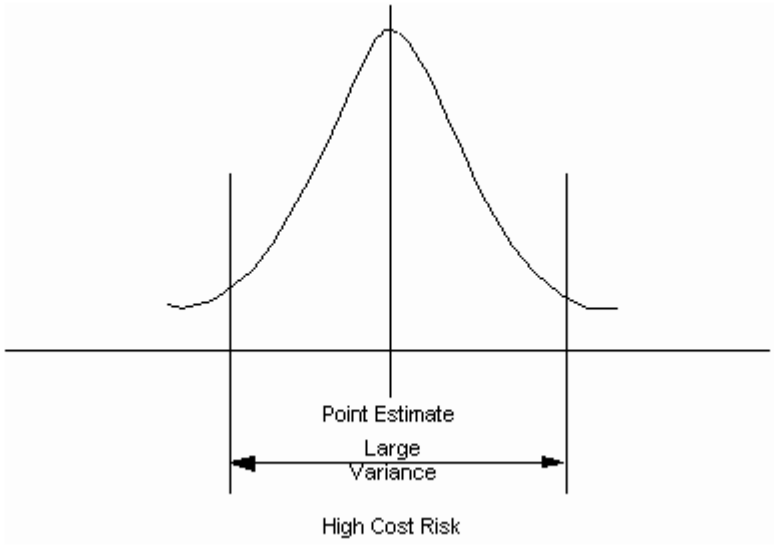
11.3.2 Identifying And Ameliorating Sources Of Cost Risk

Identify Sources of Cost Risk. Most cost estimates, whether they are the offeror's proposed or the Government's recommended, include a "point estimate" -- the point estimate is an estimate of what the estimator believes is most likely to happen. In most cases, the point estimate is one of a range of possible costs.

Since things rarely happen exactly as predicted, there are usually variances between projected and actual costs. Known to statisticians as an error probability distribution, the greater the potential variability between the projected and actual cost, the greater the cost risk.

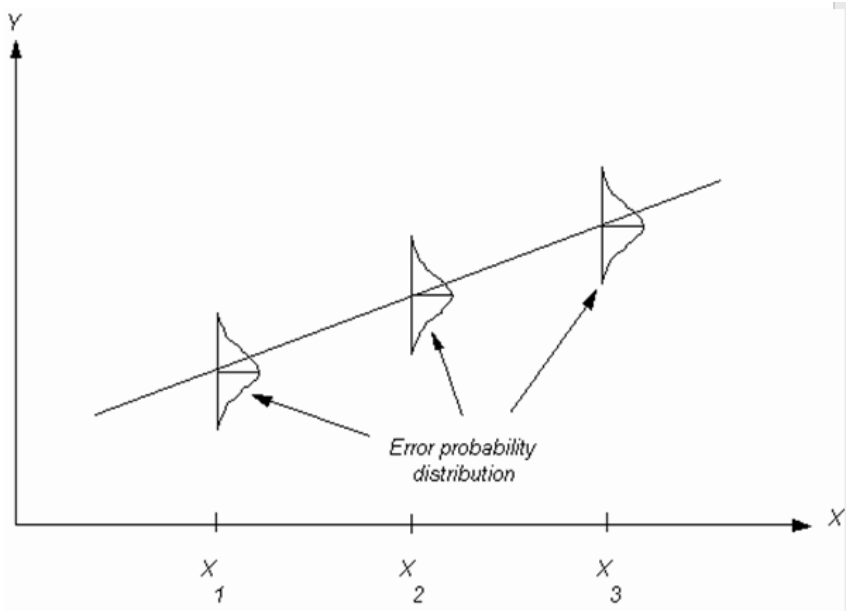


Lower Cost Risk



High Cost Risk

Even in the case of a line-of-best-fit trend analysis, you are dealing with a point estimate-a point on the best-fit line with a probability distribution surrounding it.



Typically, cost risk increases when market prices are volatile, or you lack cost information on the market. For example, cost risk is typically quite high for contracts that require new and untested product technology.

Even when there is substantial cost risk, you can make a point estimate. However, as contractor cost risk increases, contractors normally become more concerned about the upper limit of cost risk and less concerned about the point estimate. In such situations, you must find a way to ameliorate the risk involved.

Identify Means of Reducing or Controlling Contractor Cost Risk. Remember that there are a variety of methods that you should consider for reducing and controlling contract cost. Among the most important are the appropriate use of:

- An appropriate contract type;
- Clear technical requirements;
- Government furnished property; and
- Other contract terms and conditions.

11.4 Identifying Key Pricing Elements In Prenegotiation Objectives

Pricing Elements by Contract Type. In preparing your negotiation objective, you must establish a position on each of the key elements that will define the contract pricing arrangement. Depending on the contract type, you may be able to restrict negotiations to total price or you may be required to negotiate agreement on several elements needed to define the pricing arrangement.

Contract Elements by Contract Type	
Contract Type	Pricing Elements Requiring Negotiation
Firm fixed-price and firm fixed-price level of effort	Total price

Fixed-price economic price adjustment	Base price Contract amount subject to adjustment Basis for determining economic adjustment Limits on economic adjustment
Fixed-price incentive firm	Target cost Target profit Cost sharing arrangement under target cost Cost sharing arrangement over target cost Ceiling price
Fixed-price incentive successive targets	Initial target cost Initial target profit Initial cost sharing arrangement under target Initial cost sharing arrangement over target Ceiling for firm target profit Floor for firm target profit Point(s) where firm target cost and firm target profit will be negotiated Ceiling price
Fixed-price with prospective price redetermination	Firm fixed-price for initial period Stated time(s) for prospective price redetermination
Fixed-price contract with retroactive price redetermination	Fixed ceiling price Agreement to price redetermination after contract completion
Fixed-price award fee	Fixed price (including normal profit) Award fee pool Plan for periodic evaluation
Cost-plus-incentive-fee	Target cost Target fee Cost sharing arrangement under target cost Cost sharing arrangement over target cost Minimum fee Maximum fee

Cost-plus-award-fee	Estimated cost Base fee Award fee
Cost-plus-fixed-fee	Estimated cost Fixed fee
Time-and-materials	Labor-hour rate(s) Material handling costs (indirect costs) or provision to charge material on a basis other than cost Ceiling price
Labor-hour	Labor-hour rate(s) Ceiling price

Relationship Between Price and Contract Type. As you prepare your negotiation objectives, remember that the contract type decision itself is subject to negotiation. Contract type and contract prices are closely related and should be negotiated together. The objective is to negotiate a contract type and price (or estimated cost and fee) that will result in reasonable contractor risk and provide the contractor with the greatest incentive for efficient and economical contract performance.

11.5 Documenting Prenegotiation Objectives

Prenegotiation Documentation.

The prenegotiation objectives establish the Government's initial negotiation position. They assist in the procurement officer's determination of fair and reasonable price. They should be based on the results of the procurement officer's analysis of the offeror's proposal, taking into consideration all pertinent information including field pricing assistance, audit reports and technical analysis, fact-finding results, independent Government cost estimates and price histories.

The procurement officer shall establish prenegotiation objectives before the negotiation of any pricing action over $1,000,000. The scope and depth of the analysis supporting the objectives should be directly related to the dollar value, importance, and complexity of the pricing action. When cost analysis is required, the procurement officer shall document the pertinent issues to be negotiated, the cost objectives, and a profit or fee objective. Prenegotiation objectives shall be documented and reviewed in accordance with departmental procedures.

You should draft the following elements of the Price Negotiation Memorandum (PNM) before negotiations:

- Purpose of the negotiation (new contract, final pricing, etc.)
- Description of the acquisition, including appropriate identifying numbers (e.g., RFP number).
- The name, position, and organization of each person who will be participating in planned prenegotiation and negotiation activities.
- The current status of any contractor systems (e.g., purchasing, estimating, accounting, and compensation) to the extent they were considered in developing the prenegotiation objective.
- If the offeror was not required to submit certified cost or pricing data to support any price negotiation over the cost or pricing data threshold, the exception used and the basis for using it.
- If the offeror was required to certified submit cost or pricing data, the extent to which the procurement officer:
    - Relied on the data submitted and used them in preparing negotiation objectives;
    - Recognized any submitted data as inaccurate, incomplete, or noncurrent and

the action that the procurement officer has taken or will take regarding the data; or

- Determined that an exception applies and will not require certification.

- A summary of the contractor's proposal, audits and internal analyses, and the Government prenegotiation objective. When significant audit or other specialists' recommendations are not adopted in the prenegotiation objective, the procurement officer should provide rationale that supports the objective position and fully explain the reasons for divergence from the recommendations.
- A summary of the most significant facts or considerations controlling the establishment of the prenegotiation price objective.
- A summary and quantification of any significant effect that direction from Legislature, other agencies, or higher-level officials (i.e., officials who would not normally exercise authority during the contract award and review process) has had on the contract action.
- The basis for the profit/fee prenegotiation objective.

Additional Documentation. In preparing your prenegotiation documentation, you should also document any important aspects of the procurement situation that affected your prenegotiation objectives, such as:

- The items or services and quantities being purchased.
- The place of contract performance.
- The delivery schedule or period of performance.
- Any differences between the proposed delivery schedule and the objective schedule.
- Any previous buys of similar products and related information:
  - When.
  - How many were acquired.
  - Schedule/production rate.
  - Contract type.
  - Unit prices or total prices, including both target and final prices, if applicable.
- Any Government-furnished material which will be provided as a result of the contract and its estimated dollar value.
- Any unique aspects of the procurement action.
- Any outside influences or time pressures associated with the procurement (e.g., procurement priority and funding limitations).

Summarizing Prenegotiation Positions. As a minimum, your prenegotiation documentation should outline the offeror's estimating rationale, the Government's prenegotiation objective, and key differences between the two positions. Generally, this summary begins with a tabular presentation similar to the following:

Cost Element	Proposed	Objective	Difference	Reference
Engineering Direct Labor	$1,000,000	$900,000	$100,000	See Para A

Engineering Overhead	$2,500,000	$2,025,000	$475,000	See Para B
Subtotal	$3,500,000	$2,925,000	$575,000	
G&A Expense	$350,000	$292,500	$57,500	See Para C
Total Cost	$3,850,000	$3,217,500	$632,500	

Using this type of tabular cost element summary, you can identify the areas and degree of differences and provide a general format for more detailed analysis.

- In Paragraph A, describe the rationale used by the offeror in developing the proposal and by the Government in developing the Government objective. Focus on the differences between the two positions. Also reference any audit or technical reports and outline your proposed disposition for any significant findings.
- In Paragraphs B and C, address the same subjects found in Paragraph A with one major exception. Since these are overhead and G&A expense rates, you need to address whether the dollar differences are the result of differences in the application base or in the rates themselves. If you look closely at the detailed examples below, you will see that the engineering overhead dollar reductions are the result of both reduced engineering labor dollars (the indirect cost base) and a reduced engineering overhead rate. For G&A expense, the difference is only in the subtotal dollars used as the allocation base with no difference in the G&A rate.

Engineering Overhead	Calculations
Proposed	$1,000,000 x 250% = $2,500,000
Objective	$900,000 x 225% = $2,025,000
General & Administrative Expense	Calculations
Proposed	$3,500,000 x 10% = $350,000
Objective	$2,925,000 x 10% = $292,500

Consider Risk by Developing a Range of Positions. The Government objective is a point estimate within a range of reasonable prices. The most likely cost estimate should be your objective, but you should consider other reasonable positions based on the information available. While your agency or contracting activity guidance may vary, the classic approach to developing a negotiation range calls for three positions -- minimum, objective, and maximum.

- **Objective.** The Government cost objective should be your best estimate of what the effort should cost, and the position where you would ideally like to settle.
- **Minimum.** The minimum, sometimes called the "going in position," should be at the low end of the reasonable range. In effect, you are saying that a price lower than the

minimum is unreasonably low. Support this position with a detailed rationale. If you use the minimum as your opening offer, you must be ready to explain to the offeror why that position is reasonable.

There may be situations where the offeror has proposed a cost below what you believe is a reasonable minimum objective. In such situations, you should present to the offeror your reasons for believing that the proposed cost is unreasonably low. If the offeror fails to change or support the cost, you must consider that failure in your analysis of proposal cost realism.

- **Maximum.** The maximum is at the high end of the reasonable range. In effect, you are saying that a price higher than the maximum is unreasonably high. You would not go above your maximum without additional data that would validate a higher figure. If you needed a negotiation clearance prior to entering negotiations, you will likely have to seek another approval before negotiating a price higher than the maximum. In any event, if you exceed the maximum, be prepared to document a clear audit trail of how you concluded a higher price was both fair and reasonable.

Document the References Used in Position Development. Documentation of the reference documents used in developing your negotiation positions is essential. You need to be able to find key references during management review of contract negotiation objectives, during negotiations, and during preparation of the price negotiation memorandum. If a question arises later concerning defective pricing, it is vital that you have a detailed record of the information that you relied on during negotiations.

Price Prenegotiation Memorandum Checklist. The Price Prenegotiation Memorandum Checklist presented below highlights points that you should consider as you prepare for price negotiations. Your prenegotiation objectives must be documented and reviewed in accordance with your department's or agency's procedures. This checklist provides a guide to important points that you should consider as you complete your contract pricing position.

Price Prenegotiation Memorandum Checklist [1]
Subject Line _____1. Identify company/division/cost center and location. _____2. Show contract or solicitation number. _____3. Identify item to be purchased.

_____4. Identify fiscal year funds.

Memorandum Text

Introductory Summary

_____1. Provide comparative figures summarizing pricing elements of the proposal, objective, and differences, by cost, profit/fee, price, profit/fee rate, and when applicable:

_____Incentive share

_____Minimum/maximum fee

_____Ceiling price and percentage of target cost

_____Option prices

_____Type contract

Particulars

_____1. Identify dates, places, and participants in fact-finding.

_____2. Identify quantities being negotiated.

_____3. Show unit prices quoted and objective.

Procurement Situation

_____1. Identify type of negotiation action (e.g., a new contract).

_____2. Describe contract items or services included in objective amount and identify status

(development, production, etc.).

_____3. Place of contract performance.

_____4. Show delivery schedule or period of performance.

_____5. State if there are any differences between the delivery schedule objective and the delivery

schedule proposed.

_____6. State whether there have been any previous buys of similar products, and if so identify:

_____When

_____How many

_____Schedule/production rate

_____Contract type

_____Unit prices or total prices including both target and final prices if applicable

_____7. Identify if Government facilities will be furnished as a result of the contract, and, if so, the

estimated dollar value.

_____8. Describe any unique features of the procurement action; for example, should-cost, design-to-cost, life-cycle cost, or special provisions affecting cost.

_____9. Describe any outside influences or time pressures associated with the procurement;

for example, procurement priority, funding limitations, etc.

Prenegotiation Summary

_____1. Show proposed costs, prenegotiation objectives, and differences, tabulated in parallel form by

major element of cost.

_____2. Identify the major considerations in pricing each major cost element in a separate paragraph

showing when applicable:

_____Treatment accorded the element in the proposal including derivation of the estimate and "as of" data used as a basis for projection.

_____Availability, adequacy, and use of subcontractor cost or pricing data.

_____Extent and adequacy of offeror review of subcontract proposals.

_____Describe how the Government objective for each major cost element was developed.

_____Consideration given to information contained in in-house technical evaluations, field analyses, or audit reports.

_____Description of any additional or updated information obtained during fact-finding and the consideration given to it.

_____Identification of any offeror provided data that formed the basis of the objective.

_____Identification of any data or information relied on instead of contractor provided data

_____Impact of the procurement on company volume and its impact, if any, on each major cost element.

_____If economic adjustment, specified contingencies, savings clauses, or other provisions are included, describe the details and rationale for use.

_____3. Describe, in a separate paragraph, how the Government profit objective was developed.

_____If structured approach used, rationale supporting assigned weights.

_____If structured approach not used, details on alternate approach and any weights used.

_____4. Justify the contract type selected including, as applicable:

_____Share line

_____Ceiling price

Miscellaneous

_____1. Identify audit reports received.

_____2. Identify contractor reviews received:

_____Purchasing system

_____Accounting system

_____Estimating system

_____Property management system

_____Earned value management system

_____Material management and accounting system

_____3. Identify field pricing support and audit reports received.

_____4. Identify in-house technical evaluations received.

1 Refer to your agency or contracting activity guidance for specific requirements.