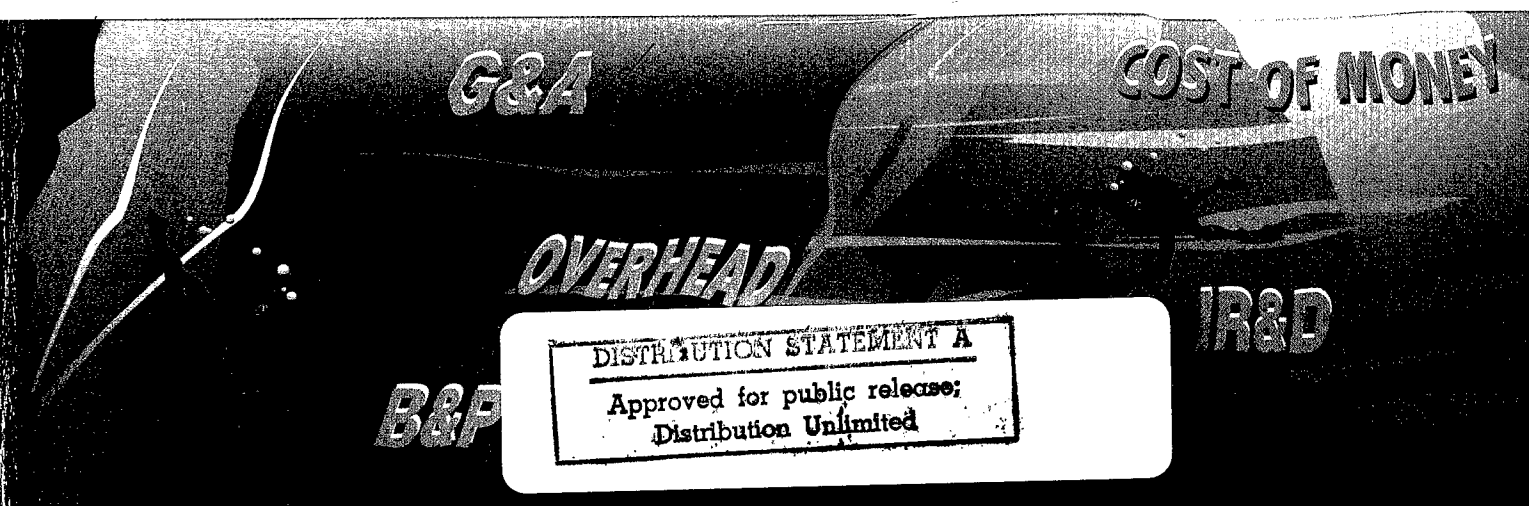
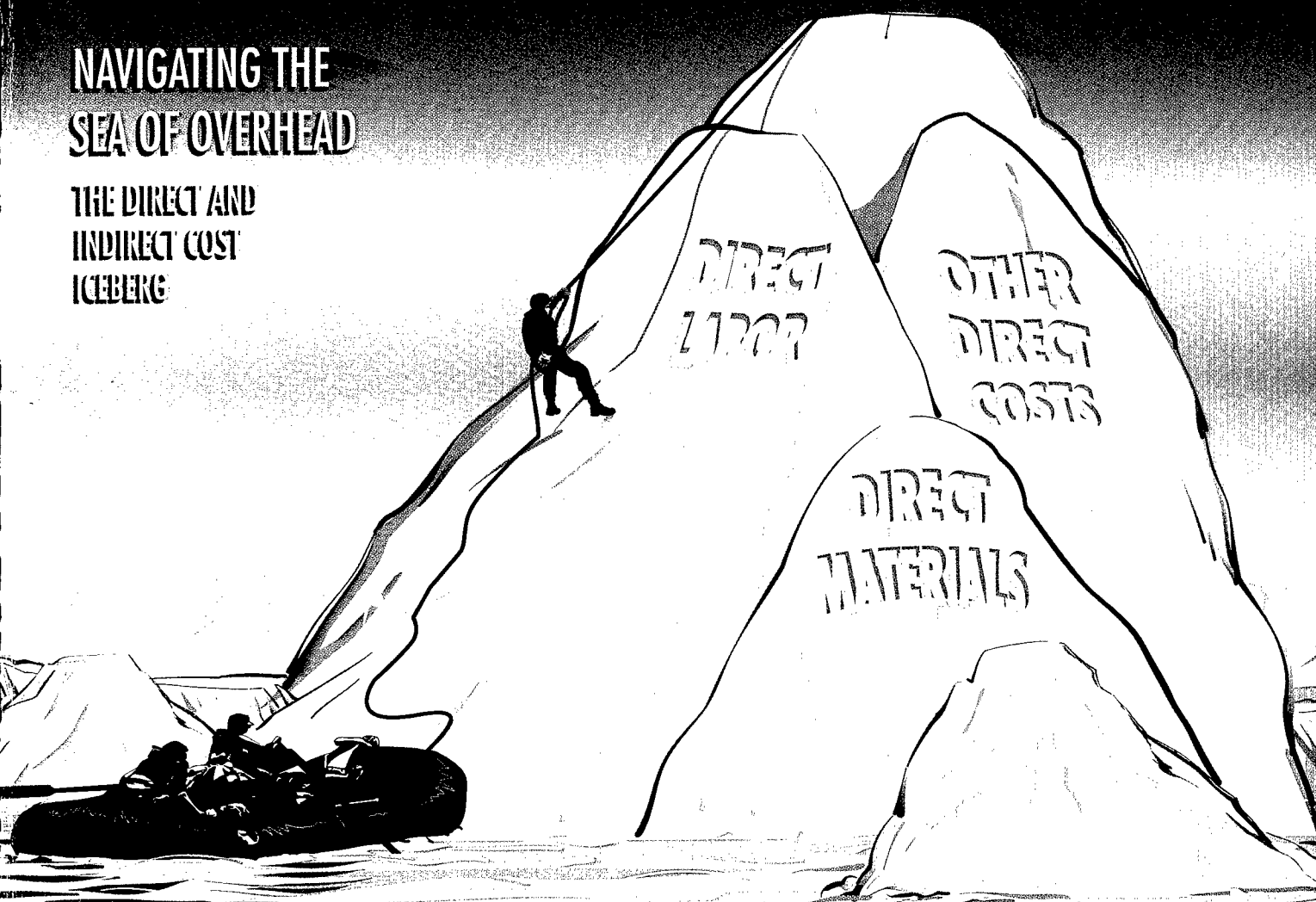


INDIRECT COST MANAGEMENT GUIDE

NAVIGATING THE SEA OF OVERHEAD

THE DIRECT AND
INDIRECT COST
ICEBERG



INDIRECT COST MANAGEMENT GUIDE

NAVIGATING THE SEA OF OVERHEAD



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PREFACE

DoD management has become increasingly concerned with broad-based increases in defense contractor indirect cost rates. Many factors have contributed to these rate increases—the major one being a significant reduction in business base for most defense contractors because of the declining defense budget. As a result, DoD has undertaken expanded efforts to strengthen the monitoring of indirect costs. It has become very important for acquisition management personnel to gain a thorough understanding of the complex and sensitive subject of indirect cost management.

We have found in teaching various program management classes at the Defense Systems Management College (DSMC) that the subject of indirect cost or overhead is usually referred to in very unfavorable terms, is commonly misunderstood, and is thought to be virtually uncontrollable from a government program management perspective. In addition, the large number of indirect rates that one encounters in the defense industry significantly contributes to the confusion our students' experience. Our objective in writing this guide is to demystify what many of our students refer to as the "sea of overhead." We have found that there is no single published source for the general audience of acquisition personnel that provides a complete overview of indirect cost management. This guide is intended to fill that void.

From the government's perspective, the monitoring of indirect cost is exceptionally broad in scope and many personnel are involved in it. So it is essential for acquisition managers to thoroughly understand the interrelationships of the numerous DoD team members and how they can help improve the monitoring process.

The research and writing of this guide was accomplished over a two-year period with the work being performed between our advanced program management classes (APMCs) and various short courses. The task has not been easy; this subject is very difficult to get a handle on due to the breath of the subject matter. As we were told by several people in both industry and government during our initial efforts, "the subject of indirect costs or overhead includes everything." As we later learned, it does in fact include everything ongoing at a defense contractor's plant. To gain background information, we conducted on-site interviews with personnel who were actively performing indirect management functions in industry and indirect cost monitoring functions in the government. The arrangements were made through contacts with our industry and government students in our APMCs. Recognizing that indirect rates are highly proprietary information, our interest was not in the quantification of indirect rate data but in the business processes used in managing these difficult-to-control costs. Several contractors and government offices provided assistance to us. We would especially like to express our appreciation to both contractor and government personnel located at Pratt-Whitney, Sikorsky, Loral Imaging Systems, and Boeing. We would also like to express our appreciation to personnel in the DCMC Headquarters Overhead Center of Excellence and in DCAA Headquarters who provided us with information relating to current issues and initiatives ongoing in their organizations.

DSMC is the controlling agency for this guide. Comments and recommendations are solicited.

Jack D. Cash
Professor of Business Management

1

INTRODUCTION

OBJECTIVE

The objective of this guide is to provide acquisition management personnel, especially personnel who are working in program offices, with an insight into the process by which defense contractors manage and government personnel monitor indirect costs. Although program office personnel are not involved in indirect cost management at contractors' facilities on a real-time basis, they need to thoroughly understand the nature of these costs and to know who to contact when questions or problems arise. Indirect costs will definitely have a very significant cost impact upon all weapon system acquisition programs. Therefore, a primary objective of our guide is to explain the roles and relationships of the many key government personnel involved with the indirect cost management process. Further, it is hoped that our guide will highlight areas for strengthening the management of indirect costs.

The level of detail in our guide is directed to nonfinancial personnel, because of the varied and broad backgrounds of people working in program management. The guide is not intended as a detailed how-to guide for industry or government functional managers but rather as a comprehensive overview of basic principles and issues related to indirect costs. A detailed how-to guide for government personnel who are directly involved in monitoring indirect cost on a daily basis has been prepared by the Defense Contract Management Command.

The guide is organized to walk the reader through the many aspects of indirect cost management. This introductory chapter on the sig-

nificance of indirect costs, the complexity of managing them, and the necessity for a team approach is followed by additional chapters that define basic concepts and terms, explain how indirect costs are allocated to contracts, explore how defense contractors manage these costs, discuss recent actions taken by defense contractors to reduce these costs, explain unique government requirements relating to indirect costs, define who the various government team members are as well as what they do, and, finally, discuss current managerial issues.

SIGNIFICANCE OF INDIRECT OR OVERHEAD COSTS

Whether a cost is classified as a direct or indirect cost can make a tremendous difference in defense contracting. For example, when there is a diverse business base the government will pay 100% of all direct costs but only a portion of indirect costs under its negotiated contracts. But the standard for determining what is a direct and what is an indirect cost is far from universal in the defense industry—or in any industry for that matter. But the classification of direct and indirect costs must be very exact at a specific defense contractor's plant and we will discuss this subject in considerable detail in a later chapter. For introductory purposes, indirect costs are those costs incurred for the general operation of the business and are not specifically applicable to any one product line, program, or contract. Direct costs are associated with a specific "final cost objective," such as a specific defense contract, while indirect costs are associated with common or joint cost objectives such as the work on several contracts.

Indirect costs, in the aggregate, represent the largest class of expense incurred under defense contracts. Recent estimates made by the Defense Contract Management Command (DCMC), in conjunction with discussions with defense contractor top management on their DCMC Overhead Initiative, indicate that indirect costs constitute approximately \$90 billion of the \$170 billion total DoD work-in-process at all defense contractor plants. See Exhibit 1, "Significance of Indirect Costs," for a breakout of this estimate of work-in-process between direct and indirect costs. As shown, the indirect costs of 16% incurred by subcontractors and vendors and the 37% incurred by prime contractors (in-plant) represented approximately 53% of total cost. Of course, the ratio of indirect cost to total cost will vary significantly among contractors within the defense industry, for it depends upon many factors. That is to say, there will be numerous differences in both work force and accounting classifications as to direct or indirect, types of products, production methods used, degree to which materials are furnished by the government, extent to which subcontractors are used, and the composition of facilities ownership. For these reasons, it is not meaningful to attempt to continuously track an exact industry-wide ratio of indirect to total cost. But regardless of the many differences between companies, in most the indirect costs of doing business will at least roughly equal the direct costs. Since indirect costs are such a significant portion of current and future total weapon system cost, program managers and others in the acquisition community must have a thorough understanding of these costs to ensure that the costs of weapons systems are kept on target.

At the outset, one should clearly recognize that the very nature of defense industry products will often dictate high indirect costs on a per-unit basis. The defense industry is critically dependent upon tremendous investments in fixed as-

sets. The sheer size of some the weapons systems require huge buildings, sometimes covering scores of acres. These large state-of-the-art facilities suggest major depreciation, maintenance, property taxes, and other large fixed indirect or overhead costs. Large research and development expenditures are necessary for a company to stay competitive in the defense industry. Research and development work necessary to produce a new weapon system normally takes many years to complete. More and more technical advancements are demanded by DoD. In order to stay on the leading edge of technology and continue to remain competitive, a company is often required to develop totally new materials. This will most likely require new processes, tooling, machinery, and personnel. In addition to its own research, development, and manufacturing efforts, defense prime contractors are responsible for overseeing the work of many subcontractors and vendors who are producing new, highly technical products. Defense contractors are required to make large investments in bid and proposal expenses in order to respond to complex government requests for proposals. Sophisticated management control systems are required in order to be capable of complying with stringent government specifications for engineering, manufacturing, and product support. Contractual reporting requirements are far more detailed and expensive than those in the commercial world. Environmental and safety requirements are substantial. Special product handling and security requirements are characteristic of the defense industry. All of these expenses are usually indirect or overhead costs that must be absorbed by all contracts if the contractor is to stay in business. In addition, defense contractors normally produce nonstandard, tailored, highly sophisticated products in relatively low volumes. Assembly is usually an intense, highly engineering-oriented process with small production quantities. As we will later discuss, a low volume results in high indirect rates.

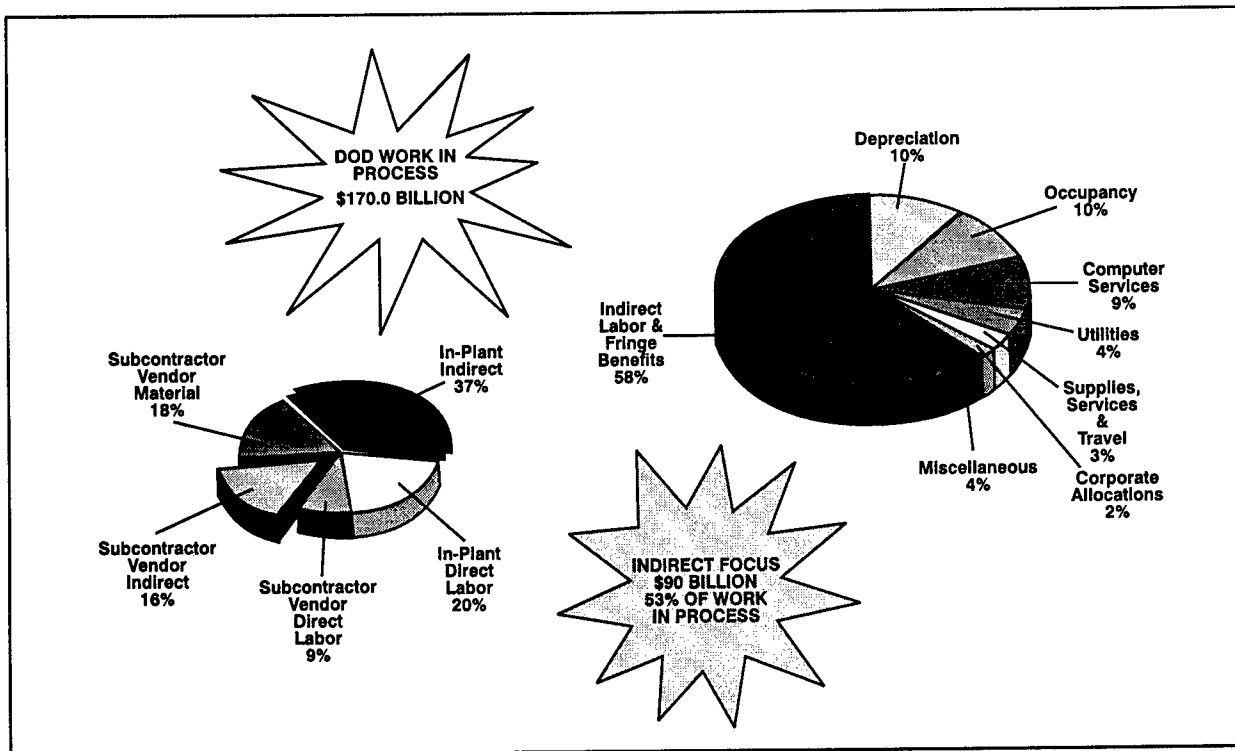


Exhibit 1. Significance of Indirect Costs

The defense budget has been in a continuing state of decline during the past decade. In particular, the continuous and large-scale decline in the defense procurement budget and research, development, test, and evaluation (RDT&E) budget has caused the defense industry to incur a steep drop-off in business base. As a result, indirect rates at many defense contractors have increased significantly as the value of contracts awarded by DoD has declined. The remaining DoD contracts are necessarily forced to absorb additional indirect costs that cannot be quickly eliminated. During the 1980s, the indirect rates of most defense contractors were safeguarded by a nearly continuous increase in business base. However, the demise of the Soviet Union has ended this continuity. A fundamental change in defense requirements has brought about a significant financial impact: an increase in indirect rates.

These increases result not only from the business base decline but also because indirect ex-

penses have increased. For example, when the business base declines, the contractor is forced to lay off large numbers of direct employees; their severance pay is an indirect expense. One technological factor that drives increases in overhead expenses is the substitution of expensive, computer-operated, labor-saving machines for direct labor in the manufacturing area. This substitution simultaneously increases the overhead expenses (added depreciation and maintenance charges) and also decreases the allocation base if it is direct labor dollars or hours. The financial impact is an immediate increase in indirect rates.

Many indirect efforts are to a large extent discretionary in nature and can be reduced or eliminated by management if conditions warrant. So indirect costs demand constant attention if the contractor is to control them effectively. From an industry perspective, there is probably no other area of management where the concentration of executive talent can be more effec-

tive. Defense contractor managers are now taking very significant actions to reduce indirect costs (see Chapter 5).

From the government's perspective, where there is an absence of adequate competitive market conditions, there is a compelling need for a sound system for monitoring indirect costs to ensure that such significant costs are managed efficiently. The government program manager needs to motivate his contractors to exercise management controls that keep indirect costs at the lowest reasonable level and to include in future contract prices only those indirect costs that are reasonable and properly allocated to his contracts. It is interesting to note that when the volume of contracts declines, a contractor quickly incurs less direct contract costs. But indirect costs may not decline as rapidly, since many fixed expenses may remain in overhead pools (e.g., the leased cost for a building, supervisory labor, power, property insurance). Consequently, government program managers should ensure that company management is reducing indirect costs as rapidly as prudent judgment allows.

DIFFICULTY OF CONTROL

The management of indirect costs has long been recognized as one of the most difficult areas to manage. There is often no clear-cut relationship between these expenses and profit, as there is with direct cost. For example, material and labor costs are very visible to management and can be estimated and controlled directly. However, the nature of indirect cost is such that the expenses are spread over a number of expense accounts of various types of expenditures occurring sporadically over the year. Most defense contractors have literally hundreds of expense accounts in each indirect cost pool. Many different persons are responsible for the incurrence of the expenses. The indirect totals that are reported every month on various cost reports are

aggregates of hundreds of unrelated indirect expenses. Further, increases in indirect expenses occur more slowly, may be less apparent, and result from a large number of unrelated actions taken by numerous managers. Management must be constantly aware of and understand the detailed composition of such costs in order to be able to control them effectively.

Many contractors who produce military hardware also produce similar hardware for commercial applications within the same division of the corporation. This is very advantageous to both the contractor and the government because it enables them to become more efficient by capitalizing on significant economies of scale. Unfortunately, this also creates ambiguity in the allocation of indirect costs between defense and commercial contracts. The acceptance of what is considered to be a "fair and reasonable" amount of the indirect costs by the government has generated some of the most difficult problems relating to government contracts. As a result, most government cost regulations, which are contained in the Federal Acquisition Regulation (FAR), are associated with the coverage of indirect costs. A thorough understanding of the regulatory provisions, which we will discuss in considerable detail, is essential to understanding indirect costs.

Government acquisition management personnel generally view indirect costs as vague and excessive. They understand very well what generates direct labor, direct material, and subcontract costs but they are much less aware of what generates indirect costs. They generally do not appreciate that indirect costs are generated by the contractor's total business volume and not by the volume of any specific contract. Indirect costs lose their identity when allocated to contracts from common cost pools and unlike direct costs, they cannot be analyzed on a contract-by-contract basis. Although the monitoring of indirect cost is often time-consuming and

complex, it is absolutely essential for proper visibility of the weapon system acquisition process.

CURRENT ENVIRONMENT

From a financial perspective, at no time in recent history have defense industry and government acquisition personnel been faced with a greater challenge. Given the current environment of less large-scale manufacturing and more prototyping, one expects indirect rates to increase in the future (i.e., less production, less manufacturing direct labor, with more engineering changes, therefore higher indirect rates). Also, during the past few years, DoD has changed the methods by which it contracts for research and development. The shift has placed a major emphasis on using cost-type contracts as opposed to fixed price contracts. This places DoD in the position of assuming more cost risk. The results of a significant decline in the defense business base of a company, along with DoD's shift in how it contracts, places a very high probability for growth in indirect rates.

Schedule delays are frequently encountered on many defense programs. The delays may be caused by unpredictable technical problems encountered in research and development programs, engineering changes to take advantage of technology improvements, budgetary uncertainties, and political decisions. These extended delays may cause significant increases in indirect costs.

In a declining business environment, rising indirect rates generally mean that a contractor's allocation base for distributing indirect or overhead costs, which is often direct labor hours or direct labor dollars, is decreasing faster than the contractor can reduce indirect costs. There may be a delay in reducing indirect costs because the base falls away on a continuous basis and the indirect budgets are usually determined on an

annual or semiannual basis. Again, continued oversight of the indirect cost management process and cost containment measures must be maintained.

IMPORTANCE OF A TEAM APPROACH

From the government's perspective, the approach to monitoring indirect costs is to monitor the contractor's management processes, not individual indirect expenditures, with the exception of samples to test the satisfactory or unsatisfactory operation of the management control system. The government expects the contractor to manage its own indirect costs—but at the same time the government has a major role to play. The government's objective is to influence the contractor's process and to take appropriate action before the costs are incurred, not after the fact. This focus will be discussed in detail later (Chapter 8) with the primary emphasis being placed on negotiation of forward pricing rates.

Government acquisition management personnel must understand that overhead costs relate to all business that the contractor has in his plant, not just to one program. Therefore, the responsibility for monitoring indirect costs necessarily rests with the administrative contracting officer (ACO), who is located at the contractor's facility. Although the ACO is the government responsible person, he cannot adequately do the job without assistance from program offices. This task requires teamwork and a close working relationship between the ACO and program managers at buying activities. In particular, major program managers should expect that ACOs will depend upon their input as to the accuracy of contractor's sales forecasts. At the buying activity, the program manager has up-to-date knowledge of specific forecasts relating to program cost, schedule, and technical information. At the contractor's plant, the ACO is concerned with ensuring that the

right types of business processes exist and are being used to support all government programs at the contractor's facility. The ACO's interest in indirect cost is the assurance that the costs are no higher than necessary and that the gov-

ernment is not paying more than its fair share. In order to function as a successful acquisition team, each team member must understand and support the roles played by the other members.

2

ESSENTIALS FOR UNDERSTANDING INDIRECT COSTS

INTRODUCTION

The reader must keep in mind that due to the nature of defense business, DoD requires a detailed knowledge of the internal cost structure of contractors; commercial customers do not require such knowledge. This is so because DoD negotiates the price of many contracts based upon the contractor's cost rather than upon price determined in a competitive marketplace. The reader should also keep in mind that the level of indirect costs is not necessarily an indicator of inefficiency. All businesses have indirect costs and they are a normal and necessary part of doing business.

The use of ambiguous terms throughout the indirect cost management process creates real problems for those uninitiated in government contracting terminology. This is true in both industry and government. For example, in practice, the term "overhead" is commonly used by many people in both industry and government to have the same meaning as the term "indirect cost." We will use the term indirect cost rather than overhead and will later discuss the differences between overhead and general and administrative expenses, which are both indirect costs. There are also many terms used interchangeably in industry that have the same meaning as overhead: "burden," "loading," "add-on," "management," and "factory expense." There are several classifications of costs as "either/or" that require a detailed explanation.

DIRECT OR INDIRECT

Before a detailed discussion of indirect cost is undertaken, one must have a regulatory understanding of several terms. We must first understand direct costs before we can understand indirect costs. We will clarify the difference between direct and indirect costs, provide the reader with an understanding of the term "final cost objective," and provide examples of the types of direct and indirect costs typically found in defense contracting. At this point, the reader must recognize that there are many differences of opinion and disputes about whether certain costs should be classified as direct or indirect. So here it is necessary to refer to the Federal Acquisition Regulation (FAR) for certain key definitions.

FAR 31.001 defines a *cost objective* as a function, organizational subdivision, contract, or other work unit for which cost data are desired and for which provision is made to accumulate and measure the cost of processes, products, jobs, capitalized projects, etc. A *final cost objective* means a cost objective that has allocated to it both direct and indirect costs and, in the contractor's accumulation system, is one of the final accumulation points. For our purposes, one should think of a final cost objective as a specific contract.

FAR 31.202 defines a *direct cost* as any cost that can be identified specifically with a particular final cost objective. Costs identified specifically with a contract are direct costs of that

contract and are to be charged directly to the contract. All costs specifically identified with other final cost objectives of the contractor are direct costs of those cost objectives and are not to be charged to the contract directly or indirectly. Simply stated, costs are designated as direct costs because they are traceable to and identified with a specific contract.

Direct material refers to all material costs that are used in making a product and that are directly associated with a change in the product. It includes raw materials, purchased parts, and subcontracted items required to manufacture and assemble completed products. The ease with which direct material can be traced to the final product has a great deal to do with whether the material is considered as direct material. For example, miscellaneous small parts used in manufacturing aircraft may be considered too small and too inexpensive to justify either the cost or time required to keep track of their cost applicable to specific aircraft. For practical reasons, they may be classified as an indirect expense.

Direct labor is the labor identified with a particular final cost objective or contract. Engineering direct labor is that engineering work that is readily identified with the end product, such as design, testing, reliability, maintainability, quality, etc. Manufacturing direct labor includes fabrication, assembly, inspection, and testing required for producing the end product. The emphasis on direct versus indirect labor in the defense contracting environment is significant to the extent that many companies designate each employee as being either a direct or indirect employee. In an effort to more accurately drive cost to the appropriate contract or project and to reduce indirect costs, some companies may have labor that is referred to as "direct distributed," "prorate," "program direct support," or some other company-specific term. These costs, such as engineering administration, program

support, scheduling, engineering liaison, are of an indirect nature, but are distributed as direct costs based upon the direct area supported.

Direct costs that are not materials or labor are generally referred to as *other direct costs* (ODC). This cost is one which by its nature may be considered indirect but, under some circumstances, can be identified specifically with a particular contract. It has all of the properties of direct material or direct labor cost, yet may or may not be a tangible part of the final product. As an example, if a consultant provides assistance on several diverse and general projects, the cost would be considered indirect and included in overhead. However, if the time the consultant spent benefited only one particular contract, then the cost would be charged to the contract on which the consultant worked and would be classified as ODC. Other examples of such direct costs could include special expenses for tooling, test equipment, insurance, travel, packaging, plant protection, and computer expenses. These "special costs" are direct because they are traceable to and identified with a specific contract.

From an accounting standpoint, a job or work order system is normally used by defense contractors to accumulate the direct costs of designing and manufacturing a company's products or the performance of services under contracts. A separate series of work orders is opened for each contract, often numbering in the hundreds or thousands, to accumulate costs for various tasks such as engineering, tooling, fabrication, and assembly.

FAR 31.203 defines an *indirect cost* as any cost not directly identified with a single, final cost objective, but identified with two or more cost objectives or an intermediate cost objective. Stated differently, after direct costs have been determined and charged directly to the contract or other work, indirect costs are those remain-

ing to be charged to the several cost objectives. The regulation further provides that an indirect cost shall not be allocated to a final cost objective if other costs incurred for the same purpose, in like circumstances, have been included as a direct cost of that or any other cost objective.

Unlike direct costs, indirect costs cannot be easily identified with one product or service. Because indirect costs are generally plant-wide costs, contractor concern for control is not solely motivated by any one contract. An example of such an indirect cost would be the costs for heating in the fabrication area that houses the work of many contracts. The heating benefits all contracts and cannot practically be identified to a specific contract. Other examples of indirect costs include salaries and wages of supervisors, foremen, and other indirect employees, nonproductive time of direct employees, fringe benefits for all employees, depreciation, insurance, taxes, rent, retirement plan contributions, and corporate management expenses allocated from the corporate office.

To fully understand the regulatory aspects, one should recognize that indirect cost primarily comprises two components: overhead and general and administrative expense. Overhead is that indirect cost related to a particular part of the company or plant such as engineering or manufacturing. General and administrative (G&A) expense is that indirect cost that supports the company as a whole, such as the chief executive's salary. The Cost Accounting Standards, which we will discuss later as unique government requirements, distinguish between overhead and G&A and require that certain allocation bases be used in some cases. The differences in overhead and G&A and the various types of overhead cost pools typically found in defense contracting will be discussed in greater depth in Chapter 3.

Exhibit 2, "Components of Contract Price," summarizes the composition of a typical government contract. As shown, there are two cost components—direct and indirect. Again, direct costs are identifiable to a particular contract and are categorized as direct labor, direct material, and other direct costs. Indirect costs relate to two or more contracts and are allocated to the appropriate contracts based on some beneficial or casual relationship. The total cost of a contract, then, is the sum of direct and indirect cost allocable to that contract. There are many methods for allocating indirect cost to contracts, which will be covered in Chapter 4. Note that an unusual item, called "cost of money," is also shown as an indirect cost. We will discuss this very unusual indirect cost later in Chapter 6 when we cover the unique government requirements relating to indirect costs.

It is important to keep in mind that the methods used to classify direct and indirect costs by individual contractors are very different. The accounting method selected by a contractor is influenced by several factors, for example, the number and type of contracts in the plant, competitive environment, personal preferences of management, and allocation methods used. However, to adequately manage its costs in a government contracting environment, a company must set firm criteria for the designation of all costs as direct or indirect. We will later discuss under the subject of cost accounting standards that some contractors are required to submit a disclosure statement, a comprehensive document in which the company describes in detail how it accumulates and allocates costs, including the specific identification of direct and indirect classifications.

In summary, if the cost is identifiable and benefits a specific contract, then it is charged directly to that contract. If the expense cannot be identified with, or does not benefit, a particular contract, it is charged to overhead or general

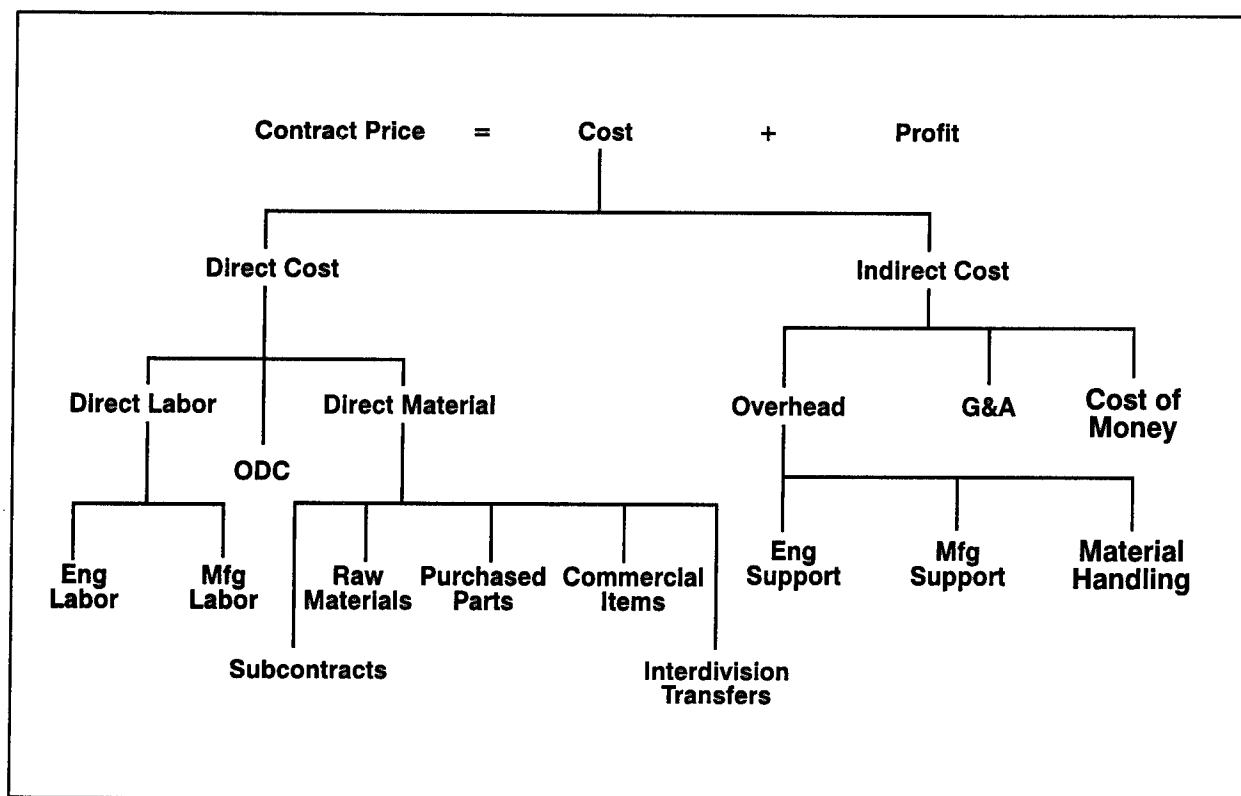


Exhibit 2. Components of Contract Price

and administrative expense and allocated to those contracts that do receive some benefit from it.

VARIABLE OR FIXED COSTS

An important step in the control of indirect or overhead costs is the breakdown of all costs into two groups—fixed and variable. The various indirect costs do not all behave in the same way as production volume or business activity increases or decreases. One indirect cost may increase as result of a new contract award while another may remain unchanged. A knowledge of cost behavior is therefore very important for indirect cost forecasting and control. There are three broad categories of costs based upon the criteria of behavior over business volume: variable, fixed, and semivariable costs.

Variable costs fluctuate directly and proportionally with business activity (i.e., production volume or level of services provided). Without production there would theoretically be no variable costs. As Exhibit 3, "Cost Behavior," shows, variable costs are constantly increasing as production increases. Labor, whether direct or indirect, is usually variable. For example, fabrication and assembly hours in the manufacturing area will increase or decrease with the quantity produced. Any change in manufacturing processes, labor rates, or employee training will affect variable labor costs. Other typical examples of variable costs found in the defense contracting environment are direct materials, fringe benefits, employer payroll taxes, royalties, testing, and miscellaneous small parts. Production support costs also are often variable. For example, the cost of electricity varies with machine use, which in turn varies with the volume of production. Also, numerous miscella-

neous factory supplies and expenses are planned in relation to the volume of direct manufacturing labor hours. Since variable costs are directly and proportionately related to productive activity, they are considered much more controllable than fixed costs.

Fixed costs are relatively constant and do not vary with changes in production volume in the short run, within reasonable limits of plant capacity. As Exhibit 3 shows, fixed costs are charted as a horizontal line, having the same total regardless of the volume or other measure of business activity. Many items of fixed costs relate to capacity. Some of these are depreciation of buildings and machinery, real and personal property taxes on buildings, equipment, and inventories, property and liability insurance, and rent. Fixed costs are sometimes called "period costs" because they relate primarily to

a period of time. Of course, if the period is long enough, all expenses will become variable. However, in the short run, a capacity cost often cannot be changed and, therefore, is considered to be fixed.

Fixed costs are established by management on a total plant basis for a broad range of activity and will remain unchanged within that "relevant range." Theoretically, the relevant range represents the levels of activity over which cost relationships remain constant. That is, if volume increases (decreases), variable costs will increase (decrease) proportionately; however, fixed costs will stay fixed within the relevant range. If volume levels increase, capacity may be strained and additional fixed cost capability required. Although fixed costs are not initially established on a contract-by-contract basis, an award of a large contract could produce a sig-

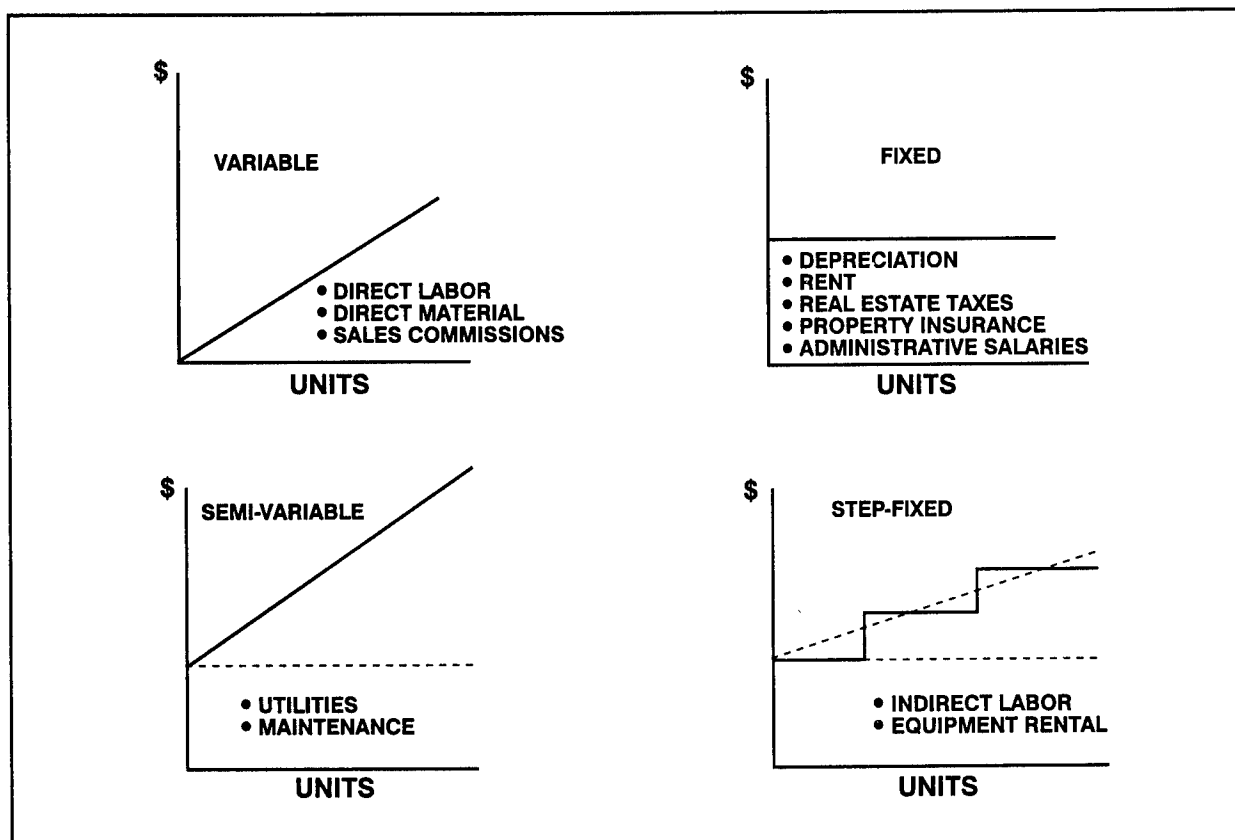


Exhibit 3. Cost Behavior

nificant change in production volume and the required level of facilities. Conversely, the loss of a large contract could result in idle capacity which produces serious overhead cost problems.

Fixed costs are often referred to as discretionary costs, indicating that control over these expenses rests with top management, who determine the amount of corporate investment in plants, equipment, and organizational size. Two very large discretionary costs in a defense contracting environment are independent research and development expenses (IR&D) and bid and proposal expenses (B&P). These indirect costs may often be increased even when current business volume is decreasing. For example, management's objective may be to gain a competitive advantage and to increase future business opportunities. Also, certain key personnel involved in research or proposal development activities might be so valuable to the company that they would be retained even if large volume decreases were experienced. It is interesting to note that some fixed costs are more fixed than others. For example, IR&D and B&P are usually budgeted by management on an annual basis and could therefore be considered as fixed for the year. But they could also be changed quickly by management decision. On the other hand, investments in plant and equipment are fixed for much longer periods of time and cannot be quickly changed.

Few indirect expenses behave over production as purely fixed or purely variable. A large number of expenses contain both fixed and variable components. As Exhibit 3 shows, these expenses often remain relatively fixed between various ranges of volumes and then advance or decline in a step-type function as volume changes occur. An expense of this nature might be the cost of renting a machine that, once available, can provide savings in per unit costs by handling a greater volume. Once its capacity is reached, however, greater volume can be

achieved only by renting an additional machine. Semivariable costs vary with volume but not proportionally. Examples of semivariable expenses are supervisory labor, repairs and maintenance, factory office salaries, social security taxes, and some utilities, such as telephones and electricity. Management control of semivariable expenses is accomplished by dividing them into fixed and variable portions and treating them accordingly. The fixed portion is considered to be the necessary expense at the lower level of the expected volume, and the difference between this and the higher level is treated as variable.

The fixed and variable analysis of indirect costs won't be found in published financial reports. But in all probability the company will have separated indirect costs into fixed and variable components for internal decision-making purposes. Most business decisions involve the selection of alternatives such as whether to make or buy, whether to accept a special offer at a lower price or not, or whether to increase capacity or not. A fixed versus variable analysis is needed for making such management decisions. Although a fixed and variable analysis should be available internally within every company, what one firm calls a fixed cost may be considered variable at another. The analysis of costs into fixed and variable components is a powerful tool for analyzing indirect costs. Rarely does defense business volume remain at one level. The process of classifying costs according to the behavior of the costs relative to changes in business volume leads the decision maker to become more knowledgeable about the cost drivers of indirect costs within a particular company.

It should be noted that the more fixed cost in a company's cost structure, the more volatile will be changes in overhead rates. This will become more apparent when we discuss the development of overhead rates in Chapter 4.

ALLOWABLE OR UNALLOWABLE COSTS

Unfortunately for defense contractors, one of the most significant factors affecting indirect costs as well as profitability is the meaning of allowable versus unallowable costs. This differentiation does not exist in the commercial world. From the contractor's perspective, there are many normal and necessary expenses for operating a business that the government will not pay for. From the government's perspective, there are many expenses that are not considered necessary for government work or are considered to be contrary to public policy for various reasons.

The specific criteria for cost allowability is contained in FAR Section 31.201. Factors to be considered in determining the allowability of individual items of cost include: (1) reasonableness, (2) allocability, (3) cost accounting standards published by the Cost Accounting Standards Board, otherwise generally accepted accounting principles, (4) terms of the contract, and (5) any limitations in the Federal Acquisition Regulation (FAR). There are about 50 selected items of costs spelled out in FAR Section 31.205 for special consideration as to the allowability of the costs on government contracts. These selected items, which are subject to frequent change, are commonly referred to in practice as the "Cost Principles." Both contractor and government personnel working on negotiated defense contracts must have personnel who are very familiar with these rules and regulations.

Because of the recent media attention, many contractors have adopted an additional "media sensitivity" test for allowability: "Before I include this cost in an overhead claim to the government, would I want to read about it in the newspaper in the morning?" As a result of congressional interest in the past few years, em-

phasis has been placed on increasing the types of costs that are unallowable. Also, Congress has enacted statutes providing for strong penalties if contractors do not comply with unallowable cost provisions. Most recently, Congress has passed limitations on the compensation for individuals that can be charged to defense contracts. Such congressional actions have been highly controversial in industry. Since most unallowable type costs are of an indirect or overhead nature, we will discuss them in more detail and provide examples in Chapter 6.

CAPITALIZED VERSUS EXPENSED

In order to understand indirect costs in the defense industry, one must appreciate that there is a tremendous difference to both the government and the contractor as to whether a particular cost is capitalized or expensed. From an accounting standpoint, the total costs of items that are acquired for relatively small amounts for general purpose use are typically classified as expenses and are placed into indirect cost pools for subsequent allocation to many contracts. However, the costs of such items for relatively larger amounts are classified as assets and are considered to be capitalized. In the case of capitalized items, only a portion of the costs is placed each year into indirect cost pools in the form of a depreciation expense.

In general, the capital versus expense distinction normally relates to plants, equipment, and other fixed assets. For example, when a company buys a machine not intended for sale, it generally expects to use the machine over and over again for the benefit of many contracts for a number of years. Therefore, the company records the cost of the machine as an asset and not as an expense. An asset is simply a valuable item that is owned or controlled by the company. In each subsequent accounting period when the machine is put into use, an appropriate portion of the cost of the machine is

written off as an expense based on the estimated service life of the machine. This expense is called depreciation and represents the systematic allocation of the cost of the asset over its estimated useful life. It also represents the decline in useful value of the asset, due to wear and tear from use and passage of time. As an example, assume that a general purpose machine to be used in the manufacturing area is purchased by a contractor for \$12,000. The installation and check-out costs are \$4,000. Further, assume that the machine has an expected useful life of eight years and is placed into use at the beginning of the year. Using a "straight-line" method of depreciation, one allows \$2,000 (\$16,000 divided by 8 years) of the total cost of the machine for each year as an indirect expense for depreciation. Recognize that there are many acceptable ways of depreciating assets in addition to the straight-line method, but it is the simplest. Regardless of the method of computation, as a general rule, depreciation expenses for all assets are indirect or overhead costs. It is important to note that the entire \$16,000 was not classified as an indirect expense in the first year. It is particularly important from a defense contracting perspective, because a contractor can bill the government immediately under a cost type contract for an appropriate allocation of indirect expenses. However, he cannot bill for the full capitalized amount of the asset at the time that it is purchased. Further, one should recognize that many companies follow a business practice of charging all asset expenditures of relatively small amounts to expense instead of recording them as assets. They thus avoid excessive accounting work. Given the large investments in assets and complexity of the defense business, with its many cost-based contracts, one would expect very specific rules governing the capitalization and expensing of assets. We will discuss this further in Chapter 7 when we cover the Cost Accounting Standards (CASs), specifically CAS 404, "Capitalization of Tangible Assets."

Amortization, which is similar to depreciation, is a term commonly used in the defense industry. Amortization is the periodic writeoff or expensing over the estimated life of certain unique assets, often program related, such as special tooling, special test equipment, and initial computer programming costs. Amortization and depreciation expenses are usually substantial amounts of indirect or overhead cost for weapon system contractors.

CONTROLLABLE OR NONCONTROLLABLE COSTS

Since indirect costs relate to and are allocated to more than one cost objective, they are much more difficult for management to control than direct costs. To deal with this problem, some companies follow an internal practice of breaking down indirect or overhead type costs organizationally as either controllable and noncontrollable. This classification is based upon the ability of a given manager to personally control the costs. The concept provides an excellent managerial tool for relating organizational structure and decision-making authority to specific activities that caused the costs to be incurred. This managerial control technique, sometimes called "responsibility accounting," will be discussed in further detail in Chapter 5 when we discuss how the defense industry typically manages indirect costs. Bear in mind that company organizations differ, and there are substantial differences in how companies break down their indirect costs between controllable and noncontrollable elements.

The basic principle of responsibility accounting is that indirect costs should not be allocated to a manager unless the manager can exercise control over costs incurred. The manager of a parts fabrication shop, for example, has direct control over and is concerned with the amount of direct labor, direct material, and other direct costs expended on specific shop orders for

building detailed parts to be fed into assemblies. In addition, he may have control over such indirect costs as labor of foremen, training time, overtime, time spent waiting for work, and call-in of manufacturing engineering. However, there are usually other costs charged to his organization that he cannot control. For example, he cannot control the depreciation on the building that he is occupying, the depreciation on the machinery and tooling that his personnel are using, or the allocation of costs from service organizations such as the computer center. Such allocated expenses are often separated from nonallocated or noncontrollable expenses in order to focus the manager's attention on the expenses that he can control.

In the short run, there are many indirect costs that cannot be quickly reduced and consequently are considered to be uncontrollable. They typically include expenses for taxes, such as state income, sales, and franchise taxes, local property taxes, royalties, insurance premiums, employer payroll taxes, and depreciation. However, in the long run, almost all costs are controllable to a certain degree by someone in the corporation. Costs incurred beyond the control of a department manager are uncontrollable cost to the department but generally are controllable by a higher manager, such as the plant manager. Examples of these plantwide costs would be employee welfare expenses for such

costs as operating a company cafeteria, operation of a medical facility, and providing an annual summer picnic for all employees. A portion of these costs would have to be allocated to all departments.

The costs of service departments may present managerial control problems. For example, the cost of a large computer services department is the overall responsibility of the computer services department head. However, service costs that can be controlled by operating departments (such as requests for specific computer services) should be the responsibility of operating department managers.

Recently, some defense companies have been getting away from the classification of costs as controllable and noncontrollable. Some are very opposed to and do not allow the use of the term noncontrollable cost. Their basic tenet is that there is no such thing as an uncontrollable indirect cost and they do not want their managers to think in these terms. They want them to focus on a management philosophy that all costs must be controlled at every organizational level and that any cost allocated to their organization should be questioned. We will cover this management view further in Chapter 5, when we discuss what defense contractors have recently done to reduce overhead costs.

3

TYPICAL INDIRECT COST POOLS

The establishment of separate indirect cost pools improves the visibility of these difficult-to-control costs and facilitates the monitoring of similar types of expenses. Based upon the contractor's needs for pricing and control, he groups his indirect costs into logical cost pools relating to major functions and activities performed, types of products produced, company-specific organizational structure, market served, and other considerations. Contractors whose products, services, or contracts are substantially different will naturally require more detailed cost pools. The type or number of indirect cost pools necessary for a contractor's business segment is not specified by industry standards or government regulations, and consequently will vary significantly.

After indirect costs are properly pooled, they are distributed to cost objectives using a direct cost distribution base that is common to all cost objectives to which the indirect costs are to be allocated. The various methods of distributing or allocating overhead costs to contracts will be discussed in detail in Chapter 4.

Indirect cost pools can be categorized as overhead, service center, or general and administrative (G&A) expense pools. The primary distinction between overhead and G&A is that overhead costs only benefit a part of a business segment (e.g., a functional organization such as engineering or manufacturing), while the G&A expense pool benefits the entire organization. Exhibit 4, "Typical Contractor Cost Hierarchy," shows the three broad categories of indirect cost pools that will require assignment or allocation to contracts (i.e., service centers,

overhead pools, and the G&A pool). Note that the contractor's business segment has three major contracts and several independent research and development/bid and proposal projects (IR&D/B&P), all using direct material, direct labor, and other direct cost, with four service centers, eight overhead pools, and one G&A cost pool. Of course, if a contractor is to be profitable, the objective must be to assign all costs to contracts or "final cost objectives."

OVERHEAD POOLS

It is very common to find separate overhead pools for engineering, manufacturing, material handling, and for certain off-site activities, particularly those performed at government facilities as opposed to contractor-owned facilities. Yet, it is conceivable that a very small contractor could have only one overhead pool. However, since defense industry products and services are usually very complex and very different from commercial products, defense contractors normally have multiple overhead pools. Generally, the accuracy of cost information and management visibility are improved by the introduction of additional indirect cost pools. Again, the type and number of indirect cost pools vary significantly. One contractor may have 8 overhead pools; another may have more than 100. Even the same corporation will often have totally different overhead pool structures for various business segments or separate divisions within the corporation. More detailed government regulatory requirements in the CAS and FAR relating to the criteria for accumulating indirect costs into cost pools will be discussed in Chapter 7.

CONTRACTOR BUSINESS SEGMENT									
I N D I R E C T C O S T	G&A	SEGMENT GENERAL AND ADMINISTRATIVE EXPENSES							
		CORPORATE OFFICE EXPENSE ALLOCATION							
		INDEPENDENT RESEARCH AND DEVELOPMENT EXPENSES							
		BID AND PROPOSAL EXPENSES							
OVERHEAD COST POOLS ⁽¹⁾									
	ENGINEERING	PRODUCT A	PRODUCT B	ASSEMBLY	FABRICATION	TOOLING	MATERIAL HANDLING	OFF-SITE	
SERVICE CENTERS ⁽²⁾									
	COMPUTER SERVICES	USE AND OCCUPANCY ⁽³⁾			OPERATIONS ⁽⁴⁾		INDUSTRIAL ENGINEERING		
D I R E C T C O S T	CONTRACT A	CONTRACT B			CONTRACT C		IR&D/B&P PROJECTS ⁽⁵⁾		
	DIRECT MATERIALS DIRECT LABOR OTHER DIRECT COSTS	DIRECT MATERIALS DIRECT LABOR OTHER DIRECT COSTS			DIRECT MATERIALS DIRECT LABOR OTHER DIRECT COSTS		DIRECT MATERIALS DIRECT LABOR OTHER DIRECT COSTS		

TRANSFERRER TO G&A

(1) Some overhead pools, such as Product A, may not apply to all contracts.

(2) A service center, such as computer services, may perform work on specific contracts (as other direct costs), as well as supporting overhead pools such as engineering.

(3) Use and occupancy includes depreciation of plant and equipment, maintenance, insurance, taxes, facilities engineering, janitorial, etc.

(4) Operations includes manufacturing planning, production control, quality inspection, graphics, reproduction, etc.

(5) IR&D/B&P expenses are indirect expenses that are collected on a project basis similar to contracts, i.e., direct labor, direct materials, and allowable overhead are accumulated, and are then transferred for allocation as an indirect expense.

(1) Some overhead pools, such as Product A, may not apply to all contracts.

(2) A service center, such as computer services, may perform work on specific contracts (as other direct costs), as well as supporting overhead pools such as engineering.

(3) Use and occupancy includes depreciation of plant and equipment, maintenance, insurance, taxes, facilities engineering, janitorial, etc.

(4) Operations includes manufacturing planning, production control, quality inspection, graphics, reproduction, etc.

(5) IR&D/B&P expenses are indirect expenses that are collected on a project basis similar to contracts, i.e., direct labor, direct materials, and allowable overhead are accumulated, and are then transferred for allocation as an indirect expense.

Exhibit 4. Typical Contractor Cost Hierarchy

Most defense contractors will have separate overhead pools for engineering and manufacturing. Engineering overhead includes the costs of directing and supporting all activities relating to the engineering organization that cannot be assigned to specific contracts. Engineering overhead typically includes engineering supervision, engineering policies and procedures, depreciation of engineering buildings and equipment, software, training, maintenance, supplies, scientific library, and fringe benefits. Manufacturing overhead, sometimes called factory overhead or factory burden, usually includes all items of production costs except direct material, direct labor, and other direct costs. The component elements of manufacturing overhead typically consist of several major categories of expense, including supervision, administration, time standards engineering, manufacturing research, tool cribs, maintenance, indirect supplies such as small tools, grinding wheels, and cleaning supplies. It usually includes the costs associated with factory labor fringe benefits, such as social security taxes, leave, group health insurance, etc. It also includes factory-related fixed charges for depreciation, insurance, rent, and property taxes. Manufacturing overhead is often broken down into several overhead pools rather than one overall manufacturing pool. This is particularly the case when several different products require varying amounts of overhead support. For example, separate overhead pools are often found for assembly, fabrication, tooling, and quality. Engineering and manufacturing overhead pools are sometimes referred to as "resource pools" because they collect or pool the costs of administrative and other indirect expenses associated with centralized resource organizations that support multiple products.

If a contractor's activities are spread out geographically, the use of separate off-site indirect cost pools for each geographic location will normally produce more accurate allocations of

indirect cost than the use of in-plant or company-wide pools. Overhead pools established for off-site or remote locations should be based on eliminating from the overhead pool indirect costs that do not provide a benefit for the off-site activities. For example, occupancy costs would be eliminated from off-site pools for work performed at government facilities because the contractor uses government facilities rather than his own. If a substantial traveling distance is involved, a reduction could also be made for management and supervisory expenses. Rather than having separate rates for each site, some contractors have established field service overhead pools to cover all work at customer locations away from the main plant.

Defense contractors sometimes establish "product pools" with the objective of increasing the direct traceability of costs to individual product lines. Such pools are often established for dedicated program or product engineering, procurement, spares, or other elements in order to identify similar product overhead costs with benefiting contracts or final cost objectives. Product pools are normally established for new programs during the bid phase and may be discontinued when the effort is complete and all program costs are recorded. If a program phases down to a small effort over an extended time, the pool may be merged with another pool. Examples of product pools could be missile systems, electronic systems, advanced projects, special projects, space systems, or Program X.

Material overhead, which is commonly called material handling, normally includes the functions of purchasing, receiving and inspection, handling and storage, inventory control, and expediting of materials required for contracts. Other examples of separate overhead cost pools often found in the defense industry include overhaul and repair, modification, manufacturing development, subcontract administration,

testing, packing and crating, customer service, product support, and fringe benefits.

SERVICE CENTERS

Service centers are departments or other functional organizations that perform specific technical or administrative work for the benefit of other organizational units. Their costs may be allocated partially to contracts as direct costs and partially to other indirect cost pools, usually based on some measure of usage. For example, the cost of the computer service center could be charged directly to contracts or to other indirect cost pools on the basis of the hours worked by programmers. The programmers could be performing scientific programming for a specific engineering contract, programming numerically controlled machines for the manufacturing overhead function, updating an inventory control system for the material handling overhead function, or modifying a payroll system for accounting, which would be a G&A function. Of course, the programmers could not charge both direct and indirect costs for the same task. Each task worked on must have one and only one labor charge. Use and occupancy is another example of a very large service center commonly found in the defense industry. This service center is normally distributed based upon square footage occupied by users. It includes the costs for depreciation, maintenance, utilities, leases, security and fire protection, environmental cleanup, and facilities engineering.

From an accounting standpoint, service centers are usually closed out each month by transferring or allocating the cost of operating the service to the responsible users. Exhibit 4, "Typical Contractor Cost Hierarchy," shows service centers for computer services, operations, industrial engineering, and use and occupancy. Exhibit 5, "Final Overhead Pools," shows how an appropriate amount of these service center

costs might be allocated to the various final overhead pools. These amounts are shown at the bottom of the exhibit under the category of "Allocations." Recognize that some service center costs will be charged directly to contracts based upon use if that occurs.

Other examples of service centers often found in the defense industry are print shops, graphic arts, reproduction services, communication services, motor pools, mail rooms, technical publications, calibration labs, wind tunnels, and corporate aircraft. Some contractors refer to service centers as secondary pools, support pools, or prorate departments. In government contract accounting terms, they are referred to as "intermediate cost objectives." They are so called because costs are temporarily collected in the service center as an intermediate step before they are later allocated to final cost objectives, such as specific contracts.

GENERAL AND ADMINISTRATIVE EXPENSE POOL

General and administrative expenses (G&A) represent the cost of activities that are necessary to the overall operation of the business as a whole but a direct relationship to any particular cost objective cannot be shown. G&A includes the top management functions for executive control and direction over all personnel, departments, facilities, and activities of a business segment. Typically, it includes human resources, accounting, finance, public relations, contract administration, legal, selling, independent research and development, bid and proposal expenses, and an expense allocation from the corporate home office.

Note that a contractor's selling expenses may be included in the G&A expense pool or may be accounted for in a separate cost pool. Selling expenses are the efforts to market a contractor's products or services and include

expenses for advertising, corporate image enhancement, market planning, and direct selling.

G&A also usually includes executive bonuses, incentive awards, stock options, and business entertainment expenses. It represents the most controversial area for questioning the reasonableness of cost allocations to government contracts. In this regard, the government does not allow profit on G&A cost when computing its "profit objective" for negotiating flexibly priced contracts. It is important to note that the government position of not recognizing profit on G&A may not be apparent when one examines a billing submitted by a contractor on a cost-type contract. The profit rate on the billing may be applied to the total cost incurred, which includes G&A. However, it should be recognized that the government personnel did not consider G&A as a profit-bearing cost when they arrived at their profit rate objective prior to negotiations. Therefore, one would expect the defense contractor to minimize the cost classified as G&A.

Since G&A costs relate to the operation of the business as a whole, any cost that can be directly distributed to both government and commercial work of the contractor should be removed from G&A and distributed to the appropriate cost objective, such as a contract or appropriate overhead cost pool. Each contractor business segment has its own G&A cost pool and while there can be many overhead pools, there is only one G&A pool for a business segment. Note in Exhibit 4 that a contractor's business segment G&A usually includes major costs for segment-level general and administrative expenses, an appropriate allocation of corporate home office expenses, independent research and development expenses, and bid and proposal expenses. However, note in Exhibit 5, "Final Overhead Cost Pools," the G&A cost pool does not include independent research and development expenses or bid and proposal ex-

penses (IR&D/B&P). IR&D/B&P is absent from this exhibit is because these costs have to be handled in a very prescribed way, in accordance with government contract requirements. We will have to discuss how overhead rates are computed before we can address the proper treatment for IR&D/B&P expenses. We will revisit this matter in Chapter 4 when we discuss the requirements for deriving the total cost of IR&D/B&P projects and then transferring these very significant costs to the G&A cost pool.

MAJOR CATEGORIES OF INDIRECT EXPENSES

Since each overhead pool normally includes hundreds of individual indirect expense accounts, contractors will summarize these accounts within each cost pool into major subdivisions or categories for management control purposes. Exhibit 5 summarizes the many indirect expense accounts into five primary classifications of salaries and wages, fringe benefits, supplies and services, other expenses, and service center allocations. There is no prescribed way of doing this and all companies summarize as they choose.

Many overhead costs are for personnel, and these costs will usually make up a very significant amount of overhead costs. Personnel costs include salaries and wages of indirect labor (those employees needed to run the organization but whose work bears no direct relationship to any specific contract) and fringe benefits for both direct and indirect employees. Fringe benefits are the costs associated with labor such as health and life insurance, leave, social security taxes, and pensions. It is not unusual in the defense industry for fringe benefits to approximate 50 percent of labor costs. Supplies and services are those indirect items not assignable as a direct cost to a contract but relate to all contracts (e.g., lubricating oil, per-

ishable tools, nuts and bolts, calibration). "Other expenses" is a catch-all category that includes miscellaneous items such as travel, telephone, telegraph, and employee relocation.

The allocations category represents indirect costs distributed to the final overhead pool from external organizations such as service centers or other intermediate cost objectives. These costs usually always include the fair share of facilities-related cost including fixed asset depreciation, repair and maintenance, leased equipment, and utilities. In our example of Exhibit 4, they include service center allocations

from use and occupancy, computing services, operations services, and industrial engineering.

It should be noted that some companies may include fringe benefits as a part of their direct labor rate as opposed to classifying fringe benefits as a part of overhead. Either method is acceptable. However, since fringe benefits are such a significant amount, they will have a very significant impact upon reducing overhead rates when they are a part of direct labor. We will discuss this later when we examine allocation methods and indirect rate computations.

INDIRECT COSTS	ENG	FAB	ASSY	TOOLING	MATERIAL HANDLING	PRODUCT "A"	PRODUCT "B"	OFF SITE	G&A
Salaries & Wages:									
Supervision	\$ 3,701	\$ 19,674	\$ 6,246	\$ 729	\$ 4,235	\$ 177	\$ 301	\$ 260	\$ 21,982
Indirect Labor	33,310	91,811	28,105	4,666	33,876	694	1,157	1,214	88,636
OTP	925	18,362	4,164	198	42,345	59	141	87	2,836
Training	5,552	1,202	520	255	2,879	231	347	130	2,978
Idle Time	<u>19</u>	<u>219</u>	<u>104</u>	<u>24</u>	<u>85</u>	<u>1</u>	<u>2</u>		
Total Salaries & Wages	\$ 43,507	\$ 131,267	\$ 39,139	\$ 5,872	\$ 83,420	\$ 1,162	\$ 1,948	\$ 1,692	\$ 116,432
Fringe Benefits:									
Health & Life Ins	\$ 29,609	\$ 40,768	\$ 17,175	\$ 4,008	\$ 6,288	\$ 1,851	\$ 3,701	\$ 1,388	\$ 1,595
Workmen's Comp	1,851	31,041	12,491	1,093	5,336	116	231	173	4,432
Annual Leave	7,402	8,744	4,164	972	2,287	463	925	347	3,900
Holiday	9,253	10,930	5,205	1,214	1,906	578	1,157	434	2,482
Sick & Pers Lv	3,701	7,651	3,123	559	953	231	463	173	1,773
FICA Taxes	14,804	17,488	8,327	1,943	3,049	925	1,851	694	1,578
Unempl Taxes	1,851	2,186	1,041	243	381	116	231	87	1,064
Retirement Plan	16,655	19,674	9,368	2,186	3,430	1,041	2,082	781	2,570
Savings Plan	<u>3,701</u>	<u>4,372</u>	<u>2,082</u>	<u>486</u>	<u>762</u>	<u>231</u>	<u>463</u>	<u>173</u>	<u>2,322</u>
Total Fringe Benefits	\$ 88,827	\$ 142,853	\$ 62,977	\$ 12,703	\$ 24,391	\$ 5,552	\$ 11,103	\$ 4,250	\$ 21,716
Supplies/Svcs:									
Operating	\$ 925	\$ 18,624	\$ 6,402	1,241	4,235	29	35		106
Maintenance	37	1,093	520	121	898	5	12		21
Perishable Tools	1,110	9,181	4,372	1,020	51	30	8		
Cal & Cert	370	656	312	73	34	23	46		
Office Supplies	<u>925</u>	<u>874</u>	<u>427</u>	<u>97</u>	<u>728</u>	<u>60</u>	<u>46</u>		<u>1,950</u>
Total Supplies/Svcs	\$ 3,368	\$ 30,429	\$ 412,033	\$ 2,553	\$ 5,945	\$ 147	\$ 148		\$ 2,078
Other Expenses:									
Travel	\$ 7,032	\$ 1,749	\$ 833	\$ 194	\$ 8,469	\$ 160	\$ 319		\$ 8,864
Telephone	4,626	1,093	520	121	1,186	289	578		10,016
Busn Meetings	925	66	31	20	593	60	21		1,773
Employee Relocation	555	44	21	5	102	40	81		124
Dues & Subscriptions	370	46	21	8	31	18	35		1,773
Employee Welfare	<u>185</u>	<u>334</u>	<u>159</u>	<u>37</u>	<u>38</u>	<u>23</u>	<u>46</u>		<u>121</u>
Total Other Expenses	\$ 13,694	\$ 3,331	\$ 1,585	\$ 386	\$ 10,418	\$ 590	\$ 1,081		\$ 22,669
Allocations:									
Use & Occupancy	\$ 60,653	\$ 98,423	\$ 31,705	\$ 13,785	\$ 27,845	\$ 3,860	\$ 7,719		\$ 31,705
Computing Svcs	22,465	14,145	4,160	2,496	14,145	1,165	1,331		23,297
Operations Svcs	556	33,381	20,665	2,384	18,280	397	636		3,179
Industrial Eng	<u></u>	<u>5,464</u>	<u>2,484</u>	<u>1,987</u>	<u></u>	<u></u>	<u></u>		<u></u>
Total Allocations	\$ 83,675	\$ 151,413	\$ 59,014	\$ 20,652	\$ 60,270	\$ 5,422	\$ 9,687		\$ 58,181
Total Indirect Expenses	<u>\$ 233,070</u>	<u>\$ 459,294</u>	<u>\$ 174,748</u>	<u>\$ 42,165</u>	<u>\$ 184,445</u>	<u>\$ 12,874</u>	<u>\$ 23,966</u>	<u>\$ 5,942</u>	<u>\$ 221,076</u>

Exhibit 5. Final Overhead Cost Pools (In Thousands)

4

ALLOCATION OF INDIRECT COSTS

Industry requires an accurate allocation of indirect costs to final cost objectives, such as commercial products or specific government contracts, for numerous reasons. From a financial reporting perspective, it is necessary for the proper valuation of inventories and for determining business segment profitability. From a management perspective, it is necessary for controlling costs and for internal decision-making purposes, such as product pricing and capital investment decisions. In addition, in order to do business with the government on a negotiated cost basis, defense contractor management must have accurate cost and pricing data necessary for compliance with government contracting requirements. From a program management perspective, the method used to allocate indirect costs will determine the amount of those costs that will be charged to each contract.

ALLOCATION OF OVERHEAD

For overhead cost allocation purposes, companies look at overhead on an annual basis and it is considered to be a "period" expense. The period used is the contractor's fiscal year, because it provides a natural business cutoff for expenses. Consequently, this period usually never coincides exactly with any government contract period of performance. There are many reasons why businesses view overhead on an annual basis. Many overhead type expenses will vary significantly from month to month. Changes in business volume from month to month could significantly affect overhead rates. Seasonal variations, such as heating and air conditioning requirements, cause large month-to-

month differences. Month-to-month estimates are required for hundreds of indirect expenses in each overhead pool, and they can never be precisely correct. For example, detailed inventories of the many indirect materials and supplies cannot be made each month in order to know the actual amount used during a monthly production period. Many estimates must be made because management cannot wait until the end of the year to find out what each job costs. Further, many jobs will be completed before the year ends and customers are continuously requesting proposals and quotations that must include indirect costs. Therefore, overhead is estimated at the beginning of the year and applied to each job or product worked on during the year. The basic idea of this approach is to use an average estimated overhead cost without changing the overhead rate in costing specific jobs, products, or contracts from day to day or month to month. Again, overhead is managed in annual increments based upon the contractor's fiscal year.

The concept of a predetermined, "applied overhead rate" is used in industry for allocating overhead costs, for estimating purposes, and for costing jobs completed prior to the end of the year when actual costs will be known. The applied overhead rate is the ratio of estimated indirect costs for the contractor's fiscal year to the estimated business volume for some common, measurable, direct cost allocation base factor for the same period. To correct a common misunderstanding, we note that although "forward pricing rates" are commonly referred to as "applied rates," they are not the same rates. Forward pricing rates are used only for gov-

ernment contracting purposes and the contractor's applied rates have not been reduced for many costs that the government will not pay. The applied rates represent the contractor's best estimate of what he expects his total costs to be, including any unallowable expenses. The contractor's applied rates will always be greater than the rates used for government contracting purposes. We will discuss forward pricing rates later after we have addressed government requirements for allowability of indirect costs in Chapter 6.

The basic formula for all indirect cost rates is:

$$\text{rate} = \frac{\text{indirect cost pool expenses}}{\text{allocation base}}$$

In computing overhead rates, the estimated indirect costs in each cost pool is the numerator and the estimated direct specific allocation base for that cost pool is the denominator. The predetermined rate should produce an equitable allocation of indirect costs among numerous final cost objectives, such as government contracts. The estimated rate is applied to the incurred cost on each job on a cumulative basis each accounting period. Of course, there will always be a difference between the overhead costs generated by applying the predetermined estimated rate and the actual overhead costs. The estimated overhead rates are adjusted to actual rates as soon as the actual data are known at the end of the accounting period.

Each direct allocation base is calculated based on a projection of the forecasted direct activity which, in turn, is derived from the estimated sales for the same period. The estimated sales are the total sales for both government and commercial business. Any significant error in estimating sales will result in a significant error in the predetermined rate. Therefore, the accurate development of the business base is very crucial to the rate development process. We will

discuss the very important subject of sales forecasting, which is crucial to the management of overhead costs, in greater detail in Chapter 5.

The direct allocation base selected for a given overhead cost pool must be common to all contracts worked on as it becomes the measuring device for allocating joint, indirect costs to contracts. On a historical basis, the most common method of applying overhead costs has been direct labor cost. Direct labor cost has been used because it is readily available from business records and because it has traditionally been such a large, common, direct cost component of total costs. The importance of direct labor as an allocation base is changing and later we will discuss this change in more detail.

Exhibit 6, "Final Overhead Rates," takes a more detailed look at the computation of overhead rates in a large company. It shows the overhead rates that would apply to the eight overhead pools in our example of a typical defense contractor. For educational purposes, we used direct labor dollars as the basis for allocating the indirect cost for all overhead pools except material handling, where direct materials was considered to be a more appropriate allocation base. For example, in recovering the indirect costs associated with particular contracts during the year, each dollar of engineering direct labor worked on a contract will be burdened with an engineering overhead of 125.95%. In addition, the engineering direct labor and overhead, plus any added labor and overhead that may be applicable to work on the contract from other cost pools, will be burdened with general and administrative expenses; however, a G&A rate cannot be computed in our example until total IR&D/B&P expenses are computed and transferred into the G&A cost pool. The necessity for this transfer will become clear later when we discuss the methodology for allocating G&A expenses.

INDIRECT COSTS	ENG	FAB	ASSY	TOOLING	MATERIAL HANDLING	PRODUCT "A"	PRODUCT "B"	OFF SITE	G&A
Salaries & Wages:									
Supervision	\$ 3,701	\$ 19,674	\$ 6,246	\$ 729	\$ 4,235	\$ 177	\$ 301	\$ 260	\$ 21,982
Supervision	\$ 3,701	\$ 19,674	\$ 6,246	\$ 729	\$ 4,235	\$ 177	\$ 301	\$ 260	\$ 21,982
Indirect Labor	33,310	91,811	28,105	4,666	33,876	694	1,157	1,214	88,636
OTP	925	18,362	4,164	198	42,345	59	141	87	2,836
Training	5,552	1,202	520	255	2,879	231	347	130	2,978
Idle Time	19	219	104	24	85	1	2		
Total Salaries & Wages	\$ 43,507	\$ 131,267	\$ 39,139	\$ 5,872	\$ 83,420	\$ 1,162	\$ 1,948	\$ 1,692	\$ 116,432
Fringe Benefits:									
Health & Life Ins	\$ 29,609	\$ 40,768	\$ 17,175	\$ 4,008	\$ 6,288	\$ 1,851	\$ 3,701	\$ 1,388	\$ 1,595
Workmen's Comp	1,851	31,041	12,491	1,093	5,336	116	231	173	4,432
Annual Leave	7,402	8,744	4,164	972	2,287	463	925	347	3,900
Holiday	9,253	10,930	5,205	1,214	1,906	578	1,157	434	2,482
Sick & Pers Lv	3,701	7,651	3,123	559	953	231	463	173	1,773
FICA Taxes	14,804	17,488	8,327	1,943	3,049	925	1,851	694	1,578
Unempl Taxes	1,851	2,186	1,041	243	381	116	231	87	1,064
Retirement Plan	16,655	19,674	9,368	2,186	3,430	1,041	2,082	781	2,570
Savings Plan	<u>3,701</u>	<u>4,372</u>	<u>2,082</u>	<u>486</u>	<u>762</u>	<u>231</u>	<u>463</u>	<u>173</u>	<u>2,322</u>
Total Fringe Benefits	\$ 88,827	\$ 142,853	\$ 62,977	\$ 12,703	\$ 24,391	\$ 5,552	\$ 11,103	\$ 4,250	\$ 21,716
Supplies/Svcs:									
Operating	\$ 925	\$ 18,624	\$ 6,402	1,241	4,235	29	35		106
Maintenance	37	1,093	520	121	898	5	12		21
Perishable Tools	1,110	9,181	4,372	1,020	51	30	8		
Cal & Cert	370	656	312	73	34	23	46		
Office Supplies	925	874	427	97	728	60	46		1,950
Total Supplies/Svcs	\$ 3,368	\$ 30,429	\$ 412,033	\$ 2,553	\$ 5,945	\$ 147	\$ 148		\$ 2,078
Other Expenses:									
Travel	\$ 7,032	\$ 1,749	\$ 833	\$ 194	\$ 8,469	\$ 160	\$ 319		\$ 8,864
Telephone	4,626	1,093	520	121	1,186	289	578		10,016
Busn Meetings	925	66	31	20	593	60	21		1,773
Employee Relocation	555	44	21	5	102	40	81		124
Dues & Subscriptions	370	46	21	8	31	18	35		1,773
Employee Welfare	185	334	159	37	38	23	46		121
Total Other Expenses	\$ 13,694	\$ 3,331	\$ 1,585	\$ 386	\$ 10,418	\$ 590	\$ 1,081		\$ 22,669
Allocations:									
Use & Occupancy	\$ 60,653	\$ 98,423	\$ 31,705	\$ 13,785	\$ 27,845	\$ 3,860	\$ 7,719		\$ 31,705
Computing Svcs	22,465	14,145	4,160	2,496	14,145	1,165	1,331		23,297
Operations Svcs	556	33,381	20,665	2,384	18,280	397	636		3,179
Industrial Eng		5,464	2,484	1,987					
Total Allocations	\$ 83,675	\$ 151,413	\$ 59,014	\$ 20,652	\$ 60,270	\$ 5,422	\$ 9,687		\$ 58,181
Total Indirect Expenses	\$ 233,070	\$ 459,294	\$ 174,748	\$ 42,165	\$ 184,445	\$ 12,874	\$ 23,966	\$ 5,942	\$ 221,076
Allocation Base DL\$	\$ 185,055	\$ 218,597	\$ 104,094	\$ 24,289		\$ 11,566	\$ 23,132	\$ 8,674	
Allocation Base DM\$					\$ 1,693,812				
Overhead Rates	125.95%	210.11%	167.88%	173.60%	10.89%	111.31%	103.61%	68.50%	(1)

(1) The G&A rate cannot be computed until IR&D/B&P costs are transferred into the G&A cost pool (see Exhibit 7).

Exhibit 6. Final Overhead Rates (In Thousands)

Engineering DL\$		\$ 60,000
Engineering OH	125.95%	75,568
Fabrication DL\$		72,000
Fabrication OH	210.11%	151,279
Assembly DL\$		35,000
Assembly OH	167.88%	58,757
Tooling DL\$		18,000
Tooling OH	173.60%	31,248
Product "A" DL\$		6,000
Product "A" OH	111.31%	6,679
Off-site DL\$		2,000
Off-site OH	68.50%	1,370
Direct Materials		500,000
Material Handling	10.89%	<u>54,447</u>
Total Cost Input		\$ 1,072,347

Exhibit 7. Contract "A" Estimated Costs

Assume that a defense cost-type contract, including some Product A input, had the estimated direct labor and materials content as shown in Exhibit 7, "Contract A Estimated Costs." The application of the overhead rates to the direct costs would be made by multiplying the appropriate overhead rates times the estimated direct costs. Note that the Product B overhead rate is not applied to this contract. The overhead rates are applied only if the applicable direct cost used as a base for allocating overhead was used on that particular contract.

If the estimate of projected direct allocation base is too high, too little indirect cost will have been applied to contracts. If the estimate of projected allocation base is too low, too much indirect cost will have been applied. In addition, the actual indirect cost incurred in each overhead pool will realistically always be greater or less than estimated costs. Therefore, the actual indirect costs incurred will always differ from the

amount of indirect costs applied to contracts. When actual costs are less than applied costs, overhead is said to be overapplied or overabsorbed. When actual costs are greater than applied costs, overhead is said to be underapplied or underabsorbed. If the differences are not a significant amount, overapplied or underapplied overhead would be credited or charged to profit in the current year. However, if the amounts involved are significant, they would be assigned to the cost of sales and inventory in the proportions in which the costs during the year have been assigned to cost of sales and inventory.

We will discuss the comparison of actual and applied overhead costs later in more detail when we discuss how industry uses the technique of variance analysis for overhead cost control purposes. To ensure that over- and underapplied amounts are kept to a minimum, predetermined applied overhead rates are revised during the

year if there are significant changes in business volume projections or in actual indirect expenses.

The reader should keep in mind that the objective of cost allocation is to logically link the indirect costs in each cost pool to the direct cost allocation base. There should be a high correlation between the direct cost allocation measure and the indirect costs in the overhead pool. In order to accomplish a linkage, indirect costs should be allocated in a proportionate amount to the job or contract that caused the indirect cost to be incurred. Therefore, the direct allocation base should be a primary cost driver or the work activity that causes overhead costs to be incurred. If a causal connection cannot be made, some other criterion, such as benefits received, should be substituted. Certainly, the allocation of overhead cost is not an exact science and the methods of allocation can vary significantly with contractors, but the method used should give an equitable assignment of overhead to the various products produced.

There are many direct allocation bases that have proven to be acceptable for fairly distributing overhead costs. The following are commonly found in industry: direct labor dollars, direct labor dollars plus fringe benefits, direct labor hours, direct materials, prime cost (materials and labor), units produced, machine hours, meter readings, floor space, and cubic content. Employee head count is sometimes used to distribute costs such as personnel department costs, payroll department costs, cafeteria losses, and medical department costs. Generally, a combination of several of these acceptable bases are used dependent upon the particular circumstances.

The direct labor dollars base is usually used when labor rates are relatively uniform and when labor costs are significant in relationship to total costs. The direct labor activity base is

most often used, because the data are readily available from payroll and labor distribution records and the method is simple and economical. In some cases, fringe benefits are included as direct labor dollars as opposed to being included in the overhead cost pool. When this is done the overhead rate is dramatically reduced. For example, in Exhibit 6, if we include the engineering fringe benefits in the direct labor base, the engineering overhead rate is reduced from 125.95% to 52.67%. The numerator, or engineering overhead, is reduced by \$88,827 and the direct labor base is increased by a like amount resulting in a revised engineering overhead pool of \$144,243 and a revised base of \$273,882. Although the overhead rate has been dramatically reduced, total costs have not changed.

Direct labor hours is a commonly accepted base for allocating overhead costs when the employees are interchangeable, such as that sometimes found in manufacturing operations. As an example, if assembly overhead was based on direct labor hours instead of direct labor dollars as shown in Exhibit 6, and the number of direct labor hours estimated to be worked in assembly for the next year was 5,500,000 hours, the assembly overhead rate would be \$31.78 per direct labor hour. If the skills required on various contracts within a manufacturing operation vary significantly, the direct labor hour method may not be appropriate.

The use of machine hours as the basis for allocating manufacturing related indirect costs may be appropriate when machinery is heavily utilized in production operations. The current manufacturing trend toward the use of robotics and numerically controlled production equipment significantly increases the use of machines on the factory floor. Unfortunately, machine hours have not been as readily available in the past as direct labor hours for use in allocating overhead costs. However, management atten-

tion is being given to this area throughout industry and there is an increasing use of machine hours as an acceptable allocation base. If machine hours was used as the basis of allocation for fabrication overhead as shown in Exhibit 6 and it is assumed that 38 million machine hours were forecast for the year, the fabrication overhead rate would be \$12.09 per machine hour. One would expect future increases in the use of machine hours as an overhead allocation base, given the increased level of automation with an attendant reduction in direct labor as a significant cost of production. Some companies, particularly in the electronics manufacturing area, have experienced this reduction to such a degree that direct labor now represents less than five percent of product cost.

Material handling costs may be allocated based on the physical quantity of direct materials as opposed to the dollar value of the material. Also, more than one material handling rate is often found, particularly when high value materials or subcontracts require procurement processes separate from those required for lower priced, high-volume materials. The average cost or units produced method is one of the simplest methods of overhead cost allocation, as it merely distributes the costs equally to each unit of product produced during the period. However, if the products vary in size, weight, dimensions, or require different amounts of material or time to produce, this method results in an inaccurate allocation of overhead costs. For government contractors the method of allocation must be consistent with the Federal Acquisition Regulations and the Cost Accounting Standards. We will discuss this further when we address specific government requirements affecting the allocation of indirect costs. Again, the primary objective in selecting a base is to use the method that most equitably allocates costs to all work, government and commercial.

Although good accounting practices promote consistency, changes still may need to be made once accurate allocation bases are selected. If the nature of an indirect cost pool or allocation base changes substantially (for example, because of the introduction of new products, manufacturing processes, or organizational structure changes), the existing methods of allocating indirect costs may require reevaluation and change.

ALLOCATION OF GENERAL AND ADMINISTRATIVE EXPENSES

Cost allocation relating to G&A expenses accounts for one of the major differences between commercial and government contracting. In the commercial world, general and administrative expenses are typically not allocated to contracts but are considered to be period expenses that are written off to cost of sales each year. However, for government contracting purposes, if contractors did not allocate general and administration expenses to contracts, they would be unable to recover their actual total cost, even on cost-type contracts. It is important to note that G&A is called out as a separate line item on government cost performance reports (CPRs), which relate to specific contracts.

Since G&A, by definition, represents the expenses for the general management and administration of the business segment as a whole, the G&A cost allocation base should be one that represents the total activity of the business segment. If an expense is included in G&A and does not relate to the total activity of the business, then a question is raised as to why it should not be taken out of G&A and be allocated separately. The most commonly used base for allocating G&A is total cost input. Total cost input, a term seldom used outside of the government contracting world, is defined as all costs except those in the G&A cost pool.

Exhibit 8, "Computation of the G&A Rate," shows how the total G&A cost pool is determined after a transfer of IR&D/B&P expenses has been made to the G&A cost pool. IR&D/B&P projects must be accounted for on the same basis as if the work was being done under contract. That is, the projects must have a fair share allocation of all applicable overhead cost added to the direct costs of the projects. The total direct and indirect costs for IR&D/B&P projects are then added to the G&A cost pool. The G&A rate, thus determined based on total cost input as shown in Exhibit 8, would be 12.24%. Applying this rate to Exhibit 9, "Contract A Estimated Costs," the appropriate allocation of G&A to the contract would be \$131,262. The logic of including IR&D/B&P in the G&A cost pool is that this cost, like general and administration expenses, relates to the operation of the business segment as a whole. In other words, IR&D and B&P expenses are not G&A expenses but are indirect expenses that must be allocated on the same base as G&A. Many defense contractors chose to have a separate IR&D/B&P cost pool. If so, it must be allocated on the same basis as the G&A pool.

Bases that are often used for allocation of G&A expenses are total cost input, value added cost input (total cost input minus direct materials and subcontracts), and the single element of direct labor. Although the cost of goods sold or cost of sales base is often used in some businesses for allocating G&A type expenses, this base cannot be used for government contractors that are subject to cost accounting standard requirements. There are very stringent requirements regarding the accounting for general and administrative expenses for government contracting purposes and we will discuss them further when we discuss CAS 403, Allocation of Home Office Expenses, and CAS 410, Allocation of General and Administrative Expenses. Again, the accounting for G&A represents one

of the most controversial areas in government contracting.

The term "wrap rate" is sometimes used by defense contractors to indicate the total cost or "all-up" rate including overhead and G&A. For example, assume that direct labor dollars is the allocation base for engineering overhead and total cost input is the base for G&A. If the engineering overhead rate is 125% and the G&A rate is 25%, the wrap rate or "all-up" rate for engineers with an average hourly rate of \$25 would be \$70.31. Contractors often track wrap rates from year to year for competitive analysis and management control purposes. Wrap rates usually do not include direct materials, subcontracts, and materials handling, since the content of these costs may be highly variable for a given contract.

Although overhead and general and administrative rates of different companies are often compared, as an indicator of efficiency, any such comparison is of questionable value. A high rate does not necessarily indicate that indirect costs are out of control nor does a low rate indicate efficiency. In fact, a high overhead rate could be the result of a contractor having the latest and most efficient manufacturing processes in his plant versus a contractor who is operating with antiquated equipment and consequently is using an excessive amount of direct labor, which could cause the overhead rate to be low if the rate was based on a direct labor allocation base. As previously discussed, an overhead rate merely represents the relationship between one number, the indirect cost pool, and another, the selected allocation base. Although the numerator is always expressed in dollars of indirect costs, the type and number of indirect cost pools vary significantly by contractor, and the allocation bases also vary. For example, one contractor may have his receiving and inspection functions included in his manufacturing overhead pool and another may

G&A Cost Pool:

G&A Expenses (Exhibit 4) \$ 221,076

IR&D/B&P Projects:

Engineering Direct Labor		\$ 69,600	
Engineering Overhead	125.95%	87,658	
Fabrication Direct Labor		3,900	
Fabrication Overhead	210.11%	8,194	
Tooling Direct Labor		1,450	
Tooling Overhead	173.60%	2,517	
ODC		543	
Direct Materials		3,625	
Material Handling	10.89%	<u>395</u>	
Total IR&D/B&P Costs			\$ 177,883
Total G&A Expenses			<u>\$ 398,959</u>

G&A Allocation Base—Total Cost Input:

	Total Cost	Less IR&D/B&P	Total Cost Input
Engineering Direct Labor	\$ 185,955	\$ 69,600	\$ 115,455
Engineering Overhead	233,070	87,658	145,411
Fabrication Direct Labor	218,597	3,900	214,697
Fabrication Overhead	459,294	8,194	451,099
Assembly Direct Labor	104,094		104,094
Assembly Overhead	174,748		174,748
Tooling Direct Labor	24,289	1,450	22,839
Tooling Overhead	42,165	2,517	39,648
Direct Materials	1,693,812	3,625	1,690,187
Material Handling	184,445	395	184,050
ODC	31,450	543	30,907
Product "A" Direct Labor	11,566		11,566
Product "A" Overhead	12,874		12,874
Product "B" Direct Labor	23,132		23,132
Product "B" Overhead	23,966		23,966
Off-Site Direct Labor	8,674		8,674
Off-Site Overhead	5,942		5,942
Total	<u>\$ 3,437,172</u>	<u>\$ 177,883</u>	<u>\$ 3,259,290</u>
G&A Rate			12.24%

Exhibit 8. Computation of G&A Rate

Engineering DL\$		\$ 60,000
Engineering OH	125.95%	75,568
Fabrication		72,000
Fabrication OH	210.11%	151,279
Assembly DL\$		35,000
Assembly OH	167.88%	58,757
Tooling DL\$		18,000
Tooling OH	173.60%	31,248
Product "A" DL\$		6,000
Product "A" OH	111.31%	6,679
Off-Site DL\$		2,000
Off-Site OH	68.50%	1,370
Direct Materials		500,000
Material Handling	10.89%	<u>54,447</u>
Total Cost Input		\$ 1,072,347
General & Admin Expenses	12.24%	<u>131,262</u>
Total Costs		<u>\$ 1,203,609</u>

Exhibit 9. Contract "A" Estimated Costs

have similar functions included in his materials handling pool. The overhead allocation base could include fringe benefits for one contractor while such costs are included in overhead for another.

Contractors differ in the type of products they produce, ownership of facilities, tooling and equipment used, amount of government furnished equipment, the number and types of government programs, company make-versus-buy programs, and organizational structure. All of these differences will significantly impact overhead and G&A rates.

Another complicating factor that makes the comparison of overhead rates an almost

meaningless exercise is that many companies follow a practice of prorating or directly distributing certain types of costs as direct costs; other contractors may consider the same costs to be overhead. For example, administrative or indirect labor in engineering may be distributed to jobs based upon the pure engineering direct labor hours worked by the supported engineering organization. This practice has a tremendous impact upon reducing overhead rates: the numerator is reduced because indirect labor is taken out of the cost pool and at the same time the denominator is increased as the direct cost allocation base is increased. There is tremendous flexibility in accounting systems and in direct versus indirect classifications. Before any meaning-

ful analysis of overhead costs is undertaken,
one must thoroughly understand each

contractor's accounting and indirect cost allo-
cation methods.

5

DEFENSE INDUSTRY MANAGEMENT OF INDIRECT COSTS

INTRODUCTION

Thus far, we have discussed certain background information essential for understanding the subject of indirect costs. The reader must comprehend by now that these costs are extremely difficult to control and that a great deal of management attention, structure, and a disciplined business process is necessary to effectively control the costs. The essential elements for developing all overhead rates, that is, the direct allocation base and the indirect expenses for each cost pool, are developed by industry in a very disciplined manner as an integral part of the corporate business planning process. This planning process is initiated and controlled at the very top level of the corporation. Defense contractor managers strongly emphasize that a thorough understanding of the planning process is essential for grasping the development and use of indirect rates in industry. Essentially, the approach is to set out specific quantified objectives and then to follow a disciplined management decision-making process to derive rigorous budgetary data, including the data necessary for managing indirect costs.

The business planning process represents a set of top management decisions that focus on what the corporation will do to be successful and how it will do it. The corporation addresses a broad range of very significant issues, among them the goals and objectives of the corporation, manpower targets, engineering load projections, make versus buy decisions, investments in capital equipment, facility requirements, manufacturing schedules, inventory levels, discretion-

ary bid and proposal levels, independent research and development expenditure levels, and financing needs. Demonstrating the importance of this corporate planning process, in many companies, top managers make no outside commitments during the important phases of business planning. The business planning process results in the preparation of a mathematical model of the total corporation; therefore, the specific allocation bases and indirect expenses for all overhead rates, in effect, "fall out" of this decision-making process.

The control system for managing indirect costs must be thought of within the framework of the corporate organizational structure and the levels of responsibility within that structure. Defense contractors will differ notably as to the terminology used to designate various organizational levels within their corporation. For example, a branch or division could represent the top manufacturing organization in one company but a much lower level in another company. However, there are three rather common organizational terms, referred to as certain "centers," that can be used generically in industry to designate responsibility levels. The corporate office is an "investment center," which is the center with responsibility for making major decisions such as product line or facility investment. A major division or business segment of the corporation is a "profit center," which is the center with responsibility for controlling price, volume, and cost for specific products. A "cost center" is the lowest level within a business segment where a manager is held responsible for controlling the cost of spe-

cific activities. For example, a machine shop may be a department within the fabrication division of a large defense manufacturing contractor. The machine shop may contain various groups of machines such as lathes, punch presses, and milling machines. Each group of machines may be designated as a separate cost center with its own supervisor. The supervisor of the cost center is responsible for minimizing costs in that cost center. Typically, a large defense contractor may have more than a thousand cost centers at one plant location within a given business segment. Although costs are identified to specific cost centers, the managerial focus on developing and controlling indirect rates is usually at the business segment or "profit center" level.

The output of the business planning process at the profit center or business segment level is a specific set of managerial documents that provide a logical, rational sense of direction for the business segment. These managerial documents also provide a basis for guiding and evaluating the corporation's accomplishments. See Exhibit 10, "Business Planning Process Outputs," for an example of typical managerial control documents that would be produced during the planning process and would become a part of the operating plan for a business segment. Note that the names defense contractors use for their operating plans vary (e.g., profit plans, blue books, master budgets, management budgets, annual operating plans). We will use a generic term, operating plan, in our discussion.

There are four processes that are performed by the corporation in a logical and disciplined fashion, that lead to managerial control of indirect costs through the development of the operating plan: the planning process, the forecasting process, the budgeting process, and the control process.

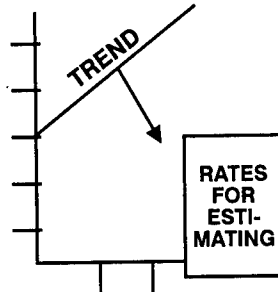
PLANNING

The first step in the planning process, which is a very high priority task for top management, is the development of the corporation's strategic or long-range plan. Strategic planning refers to the process of developing goals and objectives for each business segment and the strategies to be used in attaining them. Strategic studies are often made by the corporate office in cooperation with its business segments. Outside consultants, who have certain critical knowledge of products and markets, may be used to assist management. The strategic plan provides general direction for a five- to ten-year period (in some corporations longer). The strategic plan forms the basis from which a more detailed plan, encompassing a shorter period and which we will refer to as the operating plan, is developed.

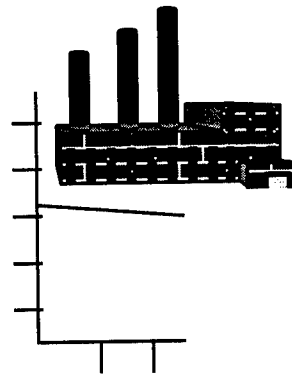
Due to the lengthy developmental nature and complexity of defense products, long-range planning is very prevalent in the aerospace/defense industry. Sound business practice requires future products to be carefully targeted for investment. Production often requires the design and construction of new, large facilities. It often takes very long lead times for the development of raw materials and components that are pushing the state of the art. In addition, because of product improvements resulting from engineering modifications, it is not unusual for defense products to have product life cycles of a decade or more. Therefore, defense contractors must carefully select their product areas and map out a long-range plan to assure success. Management must be continually assessing and evaluating what the corporation is currently doing in relationship to its dynamic operating environment. For example, management is asking itself the following very important questions:



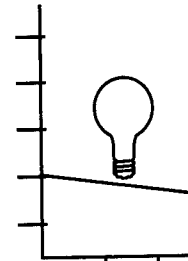
**TOP MANAGEMENT
GOALS, OBJECTIVES,
STRATEGIES**



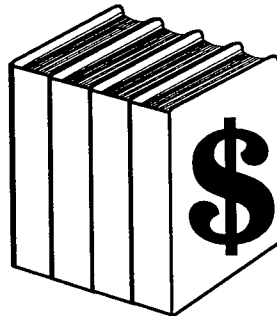
**OVERHEAD
FORECAST**



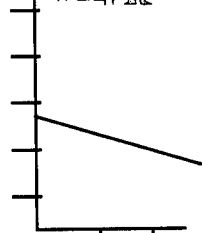
**PRODUCTION
&
ENGINEERING
PLAN**



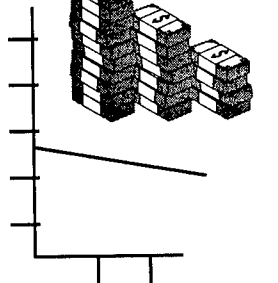
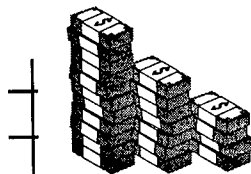
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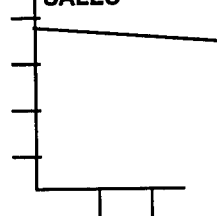
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PLAN**



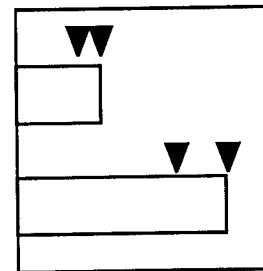
**MANPOWER
PLAN**



**CAPITAL INVESTMENT
PLAN**



**BUSINESS BASE
SALES FORECAST**



**MASTER
DELIVERY
SCHEDULE**

Exhibit 10. Business Planning Process

- What do we want to be in the twenty-first century?
- Where are we now and where are we going?
- What are our core competencies?
- What are the needs of the market place?
- What future threats are out there? How do we meet them?
- What happens if we don't?
- What competitive advantages do we have or need to develop?
- What are reasonable objectives for us to achieve?
- What is in the way?

Essentially, the strategic planning task is one of researching and identifying the right businesses to ensure future growth by developing and marketing the right products.

Long-range planning by defense contractors requires an integrated team comprising many business disciplines, including marketing, engineering, manufacturing, quality, logistics, human resources, finance, and research. The goals, objectives, and strategies for attaining them must be consistent across all functions and provide a clear sense of direction. A typical long-range plan will contain information on predicted sales and profit trends by major product line, new product lines, new acquisition plans, diversification plans, planned new facilities, manpower requirements, and research and development plans. Strategic planning is a continuous process; as significant developments occur, they are incorporated into the long-range plan. Formal updating or revision is done by many

companies on an annual basis. Each year, one year is dropped and a new one is added. The result of the long-range or strategic planning process is the establishment of a planning baseline from which near-term operating plan projections are derived; these are essential for effective management of indirect costs.

Each year prior to the start of the corporation's annual planning cycle, the corporate office or investment center establishes a uniform planning framework and issues instructions about the format and content of each planning document to be included in each of the business segment or profit center operating plans. The corporate office or investment center ensures that each of the business segments fits into the overall plan that achieves corporate objectives. In order to achieve consistent inputs from all business segments on a timely basis, a calendar of events is normally prepared by the corporate office. See Exhibit 11, "Business Planning Process—Typical Defense Contractor," for a conceptual example of the corporate and business segment responsibilities as well as the sequential flow typically found in formulating the business segment operating plan. Note that detailed planning for the next fiscal year, which in this case is the calendar year, actually begins eight months earlier with the assessment of current performance and recommendation of goals, objectives, and strategies. While the corporate office issues guidelines to the various business segments, there is considerable involvement in planning, with recommendations coming from the heads of the business segments and their key managers.

Industry program managers are typically very involved in the business planning process and are key suppliers of data relevant to their weapons systems for business planning purposes. The planning process includes considerable negotiation with corporate management. Both corporate and business segment management

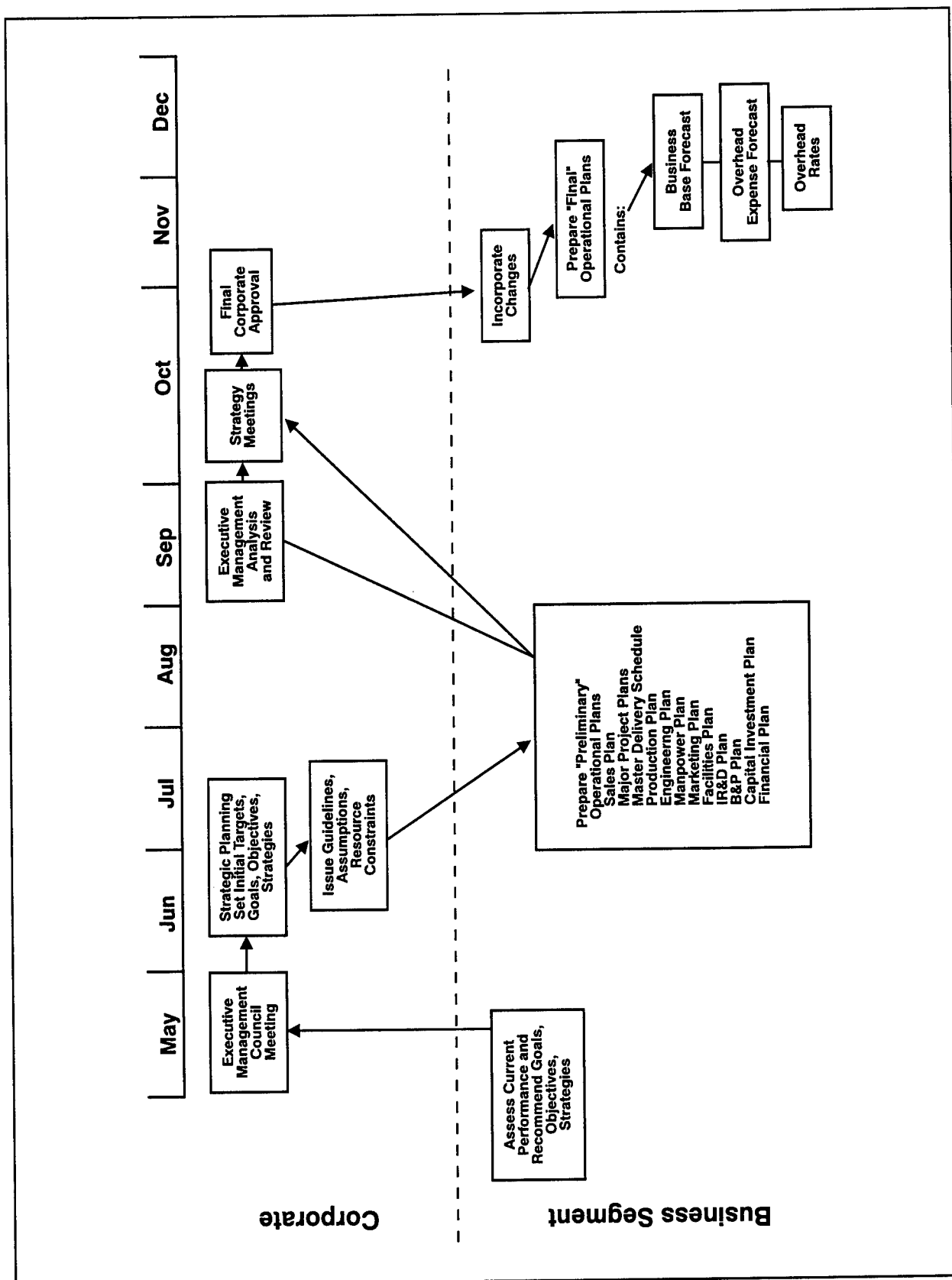


Exhibit 11. Business Planning Process – Typical Defense Contractor
(Prior to Start of Business Plan Year)

want to ensure that the operating plan is logical and achievable. It should also be challenging: it should promote the maximum utilization of corporate resources. Final approval of the plan by the top corporate management occurs before the start of the fiscal year. Once approved, the details of the operating plan become the basis for measurement of management's performance against its objectives.

Defense contractors usually prepare operating plans for each business segment for at least a three- to five-year period. A typical five-year operating plan covers the forecasted sales and profits projected by the business segment for the first 12-month period by month, the next year by quarter, and the last three years by year. The plan states the results to be achieved in quantitative terms and sets specific frames for accomplishment.

The importance of the outputs of the business planning process for the management of indirect cost cannot be over emphasized. While business segment goals can sometimes be broad and philosophical in nature, business segment objectives are very specific and measurable. For example, goals may cover such things as the basic mission or purpose of the organization, breadth of product line, product quality, growth expectations, responsibly to shareholders, social responsibilities, or to fix, sell, or close any business segment that is not number one or two in their market. Business segment objectives bring the goals into sharper focus by quantifying the goals, designating responsibility, and establishing specific time dimensions for attaining them. Examples of these might be: achieve sales of \$1 billion in 1997, increase profit by \$18 million in 1997, achieve a rate of return on investment of 14% in 1997, or reduce the manufacturing overhead rate by 15% by the end of the second quarter of 1997. Targeted "affordability" rates for overhead are sometimes set by top management during the planning pro-

cess and often become specific objectives. While a strategic plan is broad and general in nature, the operating plan is detailed and specific, for it becomes the budget or control tool for managing overhead in the near term. Further, management compensation is often tied directly to business segment objectives, which often include overhead reduction targets, and consequently, the objectives have very strong motivating power.

After the basic goals and objectives have been determined, the next step is to map out the detailed, integrated strategies for achieving the objectives. Several different types of strategies are required for the business planning process: marketing, manufacturing, research and development, human resources, and financial strategies. Each strategy is highly interrelated with the other strategies, and it is critical to the success of a business plan that each strategy be consistent with other strategies.

A market strategy addresses the issues of : Who are our target customers? What products will we sell to them? What will be the types of contracts and pricing methodologies? Will we enter the foreign military sales market? Will we participate in teaming arrangements with other contractors? Will we lower price to increase business volume?

A production strategy addresses the issues of: What process and technology will we use to design, develop, produce, deliver, and support our weapons systems? How will we meet the requirements for materials, equipment, and production skills? Will we make or buy certain components? Will we make improvements in our weapons systems to increase capabilities? Where will we locate our facilities? What level of capital investment will be necessary?

Because of rapid, frequent, and expensive changes in technology, research and develop-

ment costs are very significant costs contributing to high indirect cost rates in the defense industry. Consequently, defense contractors place very heavy weight on the research and development strategy and they must carefully plan expensive research and development projects. This strategy addresses these issues: What are the essential areas that must be maintained or expanded in order to have a competitive edge? What investments in technology are necessary to maintain or expand the competitive edge? Will we collaborate with others through joint ventures in order to share development costs? Will we purchase certain data rights to enable us to enter a given market?

A human resource strategy addresses the following issues: Do we have the necessary talent or will we need to recruit? How will we train the work force to be properly certified to perform new manufacturing operations? How will we negotiate wage rates with the union? How will we provide research personnel to develop new materials within the required time frame? How will we conduct salary and wage reviews? How will we structure our fringe benefits for professional employees in order to be competitive? Will we need to lay off personnel? If so, will we make employee severance payments?

A financial strategy addresses these issues: How will operating and investment fund requirements be generated? Will we lease or purchase facilities? What will be our financing structure: debt or equity? How will we generate a reasonable return on our investment? How will we minimize our investment in total assets? How will entering foreign markets affect taxes? How are we going to contain health care costs? Will we have an employee stock owned plan? The development of a financial strategy becomes a highly interactive process with the development of other business plan strategies because any

change or modification in other areas will necessarily have financial impact.

It should be emphasized that the development of the operating plan for the business segment (Exhibit 11, "Business Planning Process—Typical Defense Contractor") is a highly iterative process. Business segment management recommends certain tentative goals and objectives, based on guidelines, along with certain assumptions and conditions, developed by the corporate office. After considerable review and analysis, the plan is judged to be satisfactory, or not. For example, if forecasted sales do not cover estimated production and operating costs, then sales goals may be adjusted upward or indirect cost-cutting actions may be planned. If still unsatisfactory, the iterative process will begin again until an acceptable plan is developed. Each business segment's objectives and strategies will vary, but the operating plan for each segment will spell out in specific terms the performance objectives for the segment and provide clear, overall indication of how the objectives will be accomplished.

Summarizing and integrating all elements of corporate and business segment planning into one document, the operating plan is the written end product of the business planning effort, and it has both internal and external uses. Internally, it is used to communicate to management and staff the clear expectations regarding performance. In addition, the operating plan and the process of developing it are used to educate and motivate key managers in the corporation. An operating plan also has several uses in relationships with significant parties outside the firm. Since an operating plan communicates planned actions, it can be used to assist in securing funding from outside sources, either creditors or stockholders. It is important to note that the operating plan contains highly proprietary data and any decision to release it or any parts thereof to parties outside the corporation is a decision

of top management. Often, the number of copies is limited and distribution is closely controlled by management. Government personnel who have access to data in a contractor's operating plan must be aware of the highly proprietary nature of the information contained in the plan, such as forecasted indirect rates.

FORECASTING

There is probably no other business process performed within a company that is more important to the control of indirect costs than that of the forecasting of future sales. It is absolutely essential for a company to have an accurate and well-disciplined process for estimating sales, as this process leads to the projection of the all-important business base. The projection of the business base is the starting point in preparing the details of the operating plan and it is the primary driver in establishing indirect cost requirements. Since indirect cost pools include variable as well as fixed costs, indirect costs are variable to the business base projections. Consequently, an erroneous sales forecast can cause a company to get into serious indirect cost control problems.

Once the sales forecast is complete, the direct allocation bases and the indirect expenses for each overhead pool can be estimated. However, a reasonable attempt cannot be made to estimate indirect expenses in each pool until a solid estimate of the business base has been tied down. Usually, detailed indirect pool expenses are not estimated until about a month after the sales forecasting process is completed.

In order to understand indirect cost management in the defense industry one must thoroughly understand how defense contractors establish the sales forecast. The sales forecast means the total sales dollar volume, which includes both commercial and government sales. Arriving at a sales forecast is a difficult task,

typically involving inputs from hundreds of people in a large company. The process is similar to a large proposal effort and requires very close coordination and control. A "bottoms-up" approach is often necessary because of the highly varied nature of the products and services marketed. The sales forecasting process is usually managed by the vice president of marketing or vice president of finance with guidance provided by top management. Industry program managers routinely provide certain baseline information relating to their programs, such as estimates at completion, forecasts of head count, and time-phased expenditure plans, which are very valuable for use in developing sales forecasts.

The sales forecast is formulated through the analysis of data, in sequential fashion of the expected performance of the economy, industry, corporation, business segment, product line, and individual products and contracts. Several mathematical techniques are often used in estimating sales (such as trend extrapolation, simple and multiple regression, and expected value analysis). Because of the volatile nature of the defense business, management judgment plays a very significant role in estimating sales for defense contractors. Since historical weapons systems data is often not representative of the future, mathematical forecasting techniques are not as widely used as in a large commercial marketplace. Consequently, a bottoms-up approach with a heavy emphasis on the judgment of certain key managers is predominantly used in the defense business for forecasting sales. At the present time defense contractors have exceptionally difficult problems in forecasting future sales because there are so many unknowns in the current downsizing environment. Even though contractors deal with many program offices, in effect the U. S. government is the defense contractor's sole customer. Consequently, political considerations often play a major role regardless of the general economic

and industry forecasts (e.g., current debates on missile defense and submarines).

Using a bottoms-up approach, defense contractors typically develop their sales forecast through an analysis of their backlog along with projections based on managerial experience and judgment. For contractors engaged primarily in large-scale manufacturing, the buildup of the master production schedule is essential, because the key ingredients for the sales forecast are the number of items to be delivered and when they are to be delivered. One method used in near-term projections is to stratify the estimate into firm, near-firm, anticipated, and potential business. Firm business consists of commercial contracts or purchase orders and government contracts that have been funded and committed to planned production. Firm business orders are referred to as "backlog." Near-firm sales volume is volume that under normal conditions, can be expected to come to the company, but that is subject to some further action by the customer. Examples of such near-term business are priced government and commercial options in existing contracts, contracts negotiated but not signed, and any purchase orders subject to contingencies. The sales forecast also includes certain anticipated business that the company expects to perform based on prior history. An example is follow-on spare parts for supporting military products where the total requirements of specific programs or products have not yet been defined. Most commercial products fall into this category, as they usually have a history of large continuous sales. Identified new business includes sales that may be expected to result from outstanding bids and proposals. Many companies use historical statistics to determine the percentages of wins that will probably occur against a known number of proposals being submitted.

In the case of forecasting sales on very large programs, some companies use a discounting

concept on anticipated future contract values based upon "go" and "win" factors. A probability of "go" is assigned after identifying key issues of a political or funding nature that affect the success of the program. Factors considered by management in assigning probabilities include budget trends, national need, congressional support, and user acceptance. A probability of "win" is assigned based on factors such as the company's strengths and advantages relative to its competitors, technical capability, price competitiveness, and experience. The resultant sales forecast for such large programs will be extremely important in establishing overhead rates for future years.

The sales forecast is refined through a series of senior management reviews. Since the accuracy of management judgment is so critical to sales forecasting and a tremendous amount of detailed planning is dependent upon the sales forecast, management must thoroughly test the accuracy of the forecast against meeting assigned objectives. While a large number of people are involved in making inputs for the sales forecast, a very small number of top management people are involved in actually determining the final number that will represent forecasted sales volume. With experience, top management learns how to modify the sales forecasts of lower level managers. If some program or division managers are always overly optimistic in their forecasts, this will be taken into account in preparing the business segment sales forecast, with the opposite type of adjustments made for inputs from more conservative individuals. Because of the crucial importance of the sales forecast and uncertainty in forecasting, top management will often use outside consultants to provide an independent assessment of certain forecasts, particularly on large, costly, developmental programs. Once the sales forecast is complete, the translation of the sales volume into direct cost allocation bases for computing overhead rates is accomplished, primarily

through the use of historical statistical data along with engineering estimates.

Sales forecasts are assessed continuously during the year for impacts of changes to the business base or indirect expense forecasts. Monthly comparisons are usually made of actual results to sales forecasts and monthly or quarterly sales forecast revisions may be made, usually in conjunction with quarterly corporate reviews. This provides management with the latest projections of current business volume and strengthens the planning and control of indirect costs.

It should be emphasized that sales forecasting information is highly sensitive, private data that could be very damaging if it fell into the hands of some outside the company. Typically, the information is closely controlled by the company and is given out to a very limited number of personnel who have an absolute need to know. Government personnel who may have access to sales forecasting data must ensure that it is closely protected.

BUDGETING

The detailed indirect cost budgeting process can commence once the sales forecasting process has been completed and tentatively approved. Key to the development of reliable indirect rates is the establishment within the company of a rigorous budgetary control system with maximum participation by managers in the entire company. Generally, the responsibility of forecasting overhead expenses resides with a designated overhead pool manager with lower tier expense budgets developed at the functional manager level. Commitments are then made to the overhead pool manager to manage to the budgeted amounts. This process ensures ownership of the overhead budget at the lowest level of the organization.

Typically, overhead pool managers are members of upper management, often at a vice-presidential level, who are responsible to the president of the business segment for the control of overhead rates (i.e., the vice president of engineering is responsible for engineering overhead, the vice president of operations is responsible for assembly overhead). Generally, the president is responsible for general and administrative expenses. Also, because of the large dollar amounts and discretionary nature of the expenses, the president is often responsible for independent research and development and bid and proposal expenses. In some cases, at the outset, top management will furnish, along with business base projections, "overhead target" rates—rates that must be competitive with others in the marketplace. This technique is referred to as a "top down" management approach. Subsequently, through the implementation of the company's budgetary process, detailed overhead budgets are established within each pool at the lowest organizational level, using a "bottoms-up" approach. The detailed budgets, when finalized at the functional and manager levels in each overhead pool, will constitute the primary control mechanism of the overhead process. Budget planning and control systems vary among companies and among business segments within a company. Hence, we will discuss the systems broadly so that they will be applicable regardless of the differences among companies' organizational structures and accounting systems. The process used by defense contractors to establish detailed organizational overhead budgets typically comprises five separate phases: the budget call, budget submission from organizational units, a negotiation phase, a senior management review phase, and the performance measurement phase.

The top official in the financial function, usually the vice president for finance, normally will have responsibility for coordinating various

budget efforts. Within the financial function, it is usually the responsibility of a budget control group to generate budget proposals and coordinate the process for the development of overhead budgets for each organizational element. But it should be emphasized that the budgetary process constitutes a general management decision-making process and is not solely a financial function.

The annual budgeting process usually begins with a meeting held by the budget control group and attended by a representative from each department. At that time, the departments are presented with an overview of the budget process and its relationship to the other business segments and corporate plans. Each department is given a budget package to help it develop a budget request. Typically, the information in the package includes a detailed schedule of the budget process, estimating parameters to be followed such as sales forecasts, business base forecasts, labor rates, annual merit increase percentages, fringe benefits rates for hourly and salaried employees, year-to-date actual overhead expenses by account, year-to-date head count, direct employee versus indirect employee targets, and company unique pro forma budget input sheets to be used. Each departmental manager is tasked to prepare a proposal of its annual budget needs.

In effect, subordinate managers estimate and request the resources required to support the forecasted level of sales. Budgets are prepared for every unit of authority down to the lowest level of budgetary accountability, commonly at the department level. Again, this level of authority can vary by company. Until approved by top management, budgets are considered to be only requests.

It should be noted that the control of an indirect cost is usually the responsibility of the organizational unit manager for whom the cost is

budgeted. Such allocated indirect costs as depreciation, taxes, insurance, fringe benefits, rarely can be controlled by an operating department, hence, they are usually not held responsible for the budgets allocated to their department. So the assignment of cost responsibility may not always agree with cost allocations. For example, the cost responsibility of service departments are the responsibility of the department heads (e.g., industrial engineering, data processing, print shop). Budgeting for those service costs that the operating departments can control (e.g., volume of data processing services used) should be the responsibility of the operating department managers. But they would not be responsible for the amount of indirect materials used by the service departments. As an additional example, the indirect labor cost of the payroll department is controllable by the supervisor of that department. It is commonly considered to be a noncontrollable cost in the case of the factory supervisor who is charged with a prorated amount of the payroll department costs.

Indirect expense or overhead forecasts are made by responsible managers or their staff using various estimating techniques such as projections from actual experience, trend analysis, comparative analysis, manpower factors, change analysis, "grass roots" buildup using analysis of required tasks, and base variability analysis. Of primary importance in forecasting indirect expenses is an analysis of indirect labor. An evaluation of the necessity for each indirect employee through an analysis of the tasks to be performed should come before any evaluation of the cost to perform the function. Each organizational manager usually prepares and documents estimates of all indirect expenses in the detail necessary to support a reasonable and complete forecast of overhead by month, by year, and by major indirect cost element. The "bottoms-up" overhead forecasting process results in a strong commitment to achieve the

budget and a willingness to accept the results since the subordinate managers were very involved in the decision-making process.

Overhead pool managers, with the assistance of their staff, are responsible for assessing the reasonableness of the overhead estimates requested by the various organizational managers who are inputting indirect cost into their overhead pool. An assessment is made by overhead pool managers to understand customer requirements, significant cost drivers, optional resource assignments, and optimal resource use. The assessments made by overhead pool managers enable them to exercise the necessary control of costs and to have every opportunity to achieve or out-perform budget targets. Their assessment will also identify management reserves and challenges.

Typically, once all budget requests are received by the budget group in the finance function, a company overhead distribution system is run to "roll up" the proposed budgets and to develop preliminary budgeted overhead rates. An independent assessment of the budgetary estimates is then made by the budget group. Concurrent with the organizational estimating process, the budget group has usually developed its own overhead projections using various statistical data. The purpose of these independent estimates is to challenge the reasonableness of the various budgetary requests, to ensure consistency with other planning and forecasting assumptions and conditions, and ensure linkage with other key plans, such as the sales forecasts, manpower plan, and capital plan. Some contractors have found the use of budget review committees very useful in strengthening the budgetary process. In effect, subordinate managers are required to present and justify their budgetary requests to a committee comprising senior company managers.

As a result of independent reviews and challenges, negotiation with managers is conducted, changes are made if appropriate, and recommendations are made to senior management for acceptance of the results to be used as the forecasted indirect rates for the company. If differences cannot be resolved through the internal negotiating process, the matters are referred to top management for a decision. If the budgetary process works as intended, the recommendations to top management represents a joint effort of the operating organizations and the financial function.

Top management reviews the recommended indirect rates to ensure affordability and to obtain a definite commitment from overhead pool managers. Management wants to ensure that the forecasted rates are competitive, reflect maximum cost containment measures, and include significant challenges for each functional area. Most important, if management is not satisfied that the rates are competitive, the forecasted rates are not approved and subordinate managers are directed to cut overhead costs. The process starts over again. In some cases, management places upper limits on the rates, to ensure competitiveness. In order to achieve reduced rates, each functional area must find new, different, and more efficient ways to perform its tasks. Consequently, more often than not, the budgetary process for establishing overhead rates constitutes both a bottoms-up and a top-down approach.

After approval by top management and inclusion in the business segment operating plan, the estimated business base and indirect expenses become the basis for overhead budget allocations to the operating organizations. The budget allocations are flowed throughout the company to the lowest level of managerial control desired by the overhead pool manager. Overhead pool managers may establish a reserve in order to ensure that results are achieved within

the budget. Such a technique is sometimes referred to as "motivational budgeting": management will set very tight overhead budgets in order to motivate better performance and encourage cost reductions. The detailed allocated budget becomes the primary control mechanism in the overhead process as it, in effect, constitutes the delegated authority to incur overhead expenses. Budgets are time-phased by month and broken down by specific indirect cost accounts for each department. By planning at this level of detail, each manager has a tool to measure and control the activities for which he is responsible. As we will discuss later, overhead rates are subsequently monitored continuously and revisions may be made at any time that a significant change occurs in either the forecasted business base or in forecasted indirect expenses.

The indirect cost data developed in the budgetary process is highly proprietary data and usually is distributed only to executives and top-level managers. Lower level managers usually receive only budgetary data for which they are responsible. However, this data may be shared with government customers for their evaluation of indirect rates used for government contracting purposes. We will discuss government involvement in estimating indirect rates later under the subject of forward pricing rates, where a large number of government rules come into play.

CONTROL

Once actual work begins, the business enters a new phase: the budget becomes the tool for controlling indirect costs. So the management of indirect cost requires the contractor to plan in advance what the costs should be and hold actual costs in line with the plan or justify any differences. This control requires discipline and it is up to management to establish a highly disciplined cost control environment. It should be

realized that people, not reports, control indirect costs. Typically, any specific indirect cost requires the advance approval of a responsible manager or supervisor. When the budget limit is reached, no further costs may be incurred unless authorization is given by a higher level of management. Most large companies set up a very detailed signature authorization matrix system to ensure that all indirect expenses are approved by the appropriate level of management before the expenses incurred. The financial function, usually on a routine basis, verifies the appropriateness of approval levels and authenticity of signatures.

The company's management control system should provide a tracking capability for comparing actual performance with forecasts, interpretation of variances by responsible managers, and a system for readily communicating performance data to appropriate management levels. Given the large number of indirect costs in a variety of overhead pools with many managers involved in authorizing overhead costs for their respective organizations, it is critical that common, standardized reporting systems be administered to ensure the consistency and integrity of the total reporting system. Significant data relationships must be maintained, in order to have organizational "roll-ups" to higher levels of management. Also, it is essential that indirect cost control reports be submitted promptly, as they are of little value if received too late to take corrective action.

Although overhead pool managers are responsible for indirect cost performance, the reporting of actual indirect costs will occur at all lower levels of the business segment wherever budget accountability is assigned. In effect, each organizational manager is responsible for the expenditure of resources in the accomplishment of assigned overhead tasks and also must ensure that the assigned tasks are accomplished within specified and authorized spending lim-

its. Management and control of costs within those limits is supported by frequent and timely reporting of indirect costs as they are incurred, compared to targets that have been established for that reporting period. This reporting enables managers to measure performance and to make the necessary mid-course corrections, to adjust future spending to offset any adverse trends or unanticipated overruns. Consequently, reports must be in sufficient detail to reach the lowest level of indirect cost responsibility. Thus, performance reporting provides overhead pool managers, organizational managers, and top management with timely visibility on progress toward committed targets. Reports to the upper levels can eliminate some of the detail that is necessary for supervisors, but the reports must be in such detail that one can tell in which organizational unit the variances occurred.

Indirect costs are usually reported monthly, except for certain overhead costs, such as independent research and development and bid and proposal expenses, which are often reported weekly. These two very large costs can be burned up quickly if not controlled in a highly disciplined manner. Indirect cost reporting is usually done on both a current month and year-to-date basis, with an assessment of any at-completion impacts. Monthly indirect cost management meetings are usually held by pool managers with responsible organizational managers. Often, monthly management councils or committees are formed solely for the purpose of reviewing indirect costs each month. Usually, at a minimum, indirect cost reviews are held with members of top corporate management on a quarterly basis to review the status of indirect costs.

The specific format for indirect cost control reports is different for each contractor, based on its perception of the information necessary to understand progress made toward achieving established overhead rate commitment and bud-

get targets. But generally, contractors provide three primary reports to managers that show on a monthly and year-to-date basis a comparison of the planned and actual overhead rates, overhead expenses, and direct allocation bases. Exhibit 12, "Rigorous Monthly Overhead Variance Analysis," gives an example of the type of information that would be shown on a typical overhead report. This data is often shown graphically for management presentation purposes.

The chart is shown at the overhead pool level, but realize that this same comparison information is reported to each lower level organizational manager within the overhead pool, with each of the hundreds of separate indirect expenses separately identified. Individual cost center managers are then called upon to justify variances from planned costs. In addition to the reporting of specific overhead expenses, the reporting of the direct cost allocation base data is essential to monitor overhead rate performance. Although overhead pool and organizational managers have control of specific overhead expenses incurred in their organizations, they do not necessarily control the base over which their overhead costs are absorbed. For example, the head of the engineering calibration department may control the level of indirect employees in his department, but it could be the head of the engineering test department who controls the number of pieces of equipment requiring calibration as well as the timing and availability of equipment. This split in responsibility can lead to loss of control and enormous people problems unless management follows a tough cost control philosophy. Quick management action may be required to adjust spending levels to respond to changes in the allocation base, which can significantly affect the overhead rate.

Usually the computerized indirect cost control system processes monthly, but indirect labor in

each overhead pool is typically so significant that head count information may be looked at on a "by name" basis, weekly, or even daily. The importance of closely monitoring indirect head count cannot be overemphasized in controlling overhead costs.

VARIANCE ANALYSIS

Once the work is well under way, organizational managers have a continuing responsibility to justify to overhead pool managers the variances of actual performance with budget targets. An essential component of the overhead control process is a variance analysis of numerous cost drivers and cost elements when performance reporting reflects out-of-tolerance conditions. Variance analysis is accomplished in order to obtain a more in-depth understanding of differences between planned and actual performance and to enable management to better forecast future performance. These assessments also enable management to direct corrective action plans to compensate for past or future adverse performance to budget targets.

The total variance in overhead costs for a month is usually made up of several variances, some of which may be favorable and some unfavorable. Variances are termed favorable when actual costs are less than budgeted costs and unfavorable when actual costs are greater than budgeted costs. Managers analyze significant variances to determine the cause and to take appropriate corrective action. The criteria for "significant" varies by company. A rather common criteria at the overhead pool level seems to be a cumulative dollar variance for each overhead expense account of more than \$100K or more than 5% of the budgeted amount. Written explanations are usually required by management to explain these significant variances.

Variance analysis probes the reasons behind differences between performance targets or

spending plans and the true incurrence of cost. Many reasons exist for such variances, such as changes in activity scheduled, more or fewer resources required to accomplish the original plan, and changes in resource costs (i.e., labor rates, travel costs, material costs) versus planned resource costs. An analysis of an unfavorable variance in indirect labor worked in engineering, for example, may show that the variance was caused by a combination of overtime worked at premium pay, a larger number of workers on board than planned, and the use of workers in a higher labor category than planned. An unfavorable variance in indirect materials in the assembly area may be analyzed to show the cause of variance is due to the use of excessive quantities by new employees, an inferior type of material purchased, or the purchase of higher priced material than budgeted for. This information must be communicated quickly and a continuous followup undertaken before the unfavorable trends or tendencies develop into large losses. If overhead rate variances are very significant, the overhead pool budget may require revision. Quite often, this will be the case when the company experiences a major fluctuation in the forecasted business base.

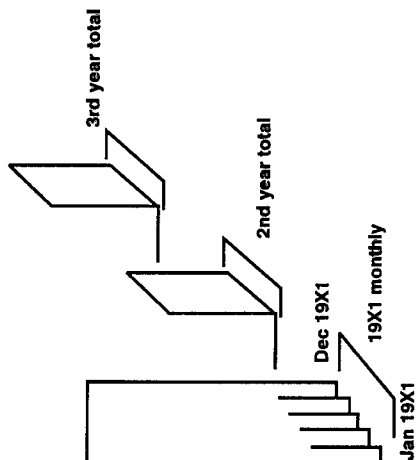
RATIO ANALYSIS

Defense contractors typically use numerous ratios as managerial tools in analyzing and controlling overhead costs. Such ratios are mathematical relationships of indirect or overhead type costs that can logically be related to direct cost drivers or total costs. For example, a manager may know based upon his experience in a particular manufacturing operation that the "utilization ratio" for his direct labor employees should be approximately 78 percent of total labor, both direct and indirect. That is, on the average he expects an employee working in a direct labor capacity on the production floor to expend 78 percent of his time working direct-

OVERHEAD BUDGETS

Pool	Expenses	Base	Rate
Engr	\$	\$	\$
Fab	\$	\$	\$
Assy	\$	\$	\$
Tooling	\$	\$	\$
Mat Hdlg	\$	\$	\$
Prod "A"	\$	\$	\$
Prod "B"	\$	\$	\$
Off-Site	\$	\$	\$
G&A	\$	\$	\$

Current year by month



OVERHEAD VARIANCE ANALYSIS

Pool	Pool Expenses			Allocation Base			Rate		
	Actual	Plan	Var	Actual	Plan	Var	Actual	Plan	Var
Engr	231147	233070	1923	186931	185055	-1876	123.65%	125.95%	2.29%
Fab	461441	459294	-2147	216307	218597	2290	213.33%	210.11%	-3.22%
Assy	176137	174748	-1389	101322	104094	2772	173.84%	167.88%	-5.96%
Tooling	42835	42165	-670	25804	24289	-1515	166.00%	173.60%	7.60%
Mat Hdlg	196434	184445	-11989	1753095	1693812	-59283	11.20%	10.89%	-0.32%
Prod "A"	13354	12874	-480	11653	11566	-87	114.60%	111.31%	-3.29%
Prod "B"	22504	23966	1462	23710	23132	-578	94.91%	103.61%	8.69%
Off-Site	6610	5942	-668	10235	8674	-1561	64.58%	68.50%	3.92%
G&A	401667	398959	-2708	3449681	3259290	-190391	11.64%	12.24%	0.60%

Overhead
Actuals

Exhibit 12. Rigorous Monthly Overhead Variance Analysis

ing on jobs and 22 percent of his time doing various indirect or overhead functions that cannot be directly traced to specific jobs or contracts. Such indirect or overhead labor charges could include, among others, training, union activities, idle time, medical exams, and various leave charges such as sickness, vacation, military, and jury duty.

In many cases, the corporate office looks at various ratios as control tools and uses them for setting targets for overhead management purposes. For example, a corporate objective given to a business segment may be to improve the utilization ratio of direct labor from 78 percent to 82 percent in 1997. The ratios used may have been developed based upon the prior year's experience for the business segment or data from other business segments in the corporation.

Recognizing that overhead is made up of literally hundreds of different types of indirect expenses, these overhead control devices are usually not developed as engineered standards that use expensive industrial engineering methods, as one typically finds for direct labor and direct material costs. Usually, they are based on internally developed historical data for each company. In order to deal with the large number of relatively small indirect charges and to facilitate the analysis by examining ratios, contractors often summarize their overhead expenses by combining similar groups of accounts. The overhead classification and summarization process is unique to each company. For example, contractors may use terms such as "facilities support services," "shop support services," and "management support services" that sound similar but are in fact quite distinct. Large overhead cost classifications in one company, such as "unrestricted parts," "perishables," "miscellaneous small parts," may not exist in other companies. In effect, each company has an overhead business language of its

own. Therefore, some ratios developed for use in controlling overhead cost in one company would probably be of little or no value in another. In actual practice, some ratios used to control overhead costs may be based on managerial experiences of key personnel who have found that certain ratios have proven profitable and efficient. The historical data base could be personal in nature, may have originated when the individual worked at another company, and may not be written down anywhere.

TREND ANALYSIS

Trend analysis greatly facilitates the analysis of overhead costs. One of the principal uses of this technique is for identifying early departures from historical patterns over time. Trend analysis enables one to detect unfavorable trends or correlations and allow attention to be focused on certain more significant indirect expense accounts or organizations that appear to be getting out of control. For example, if an indirect cost, such as the use of miscellaneous small parts in the assembly area, has been found in the past to vary proportionately with assembly direct labor, one would expect current use of these items to bear the same or similar relationship. A more detailed investigation will then be required to determine the specific causes of the departure from normal operations. For example, an increase in the miscellaneous small parts usage ratio could be caused by inexperienced employees who recently "bumped" into certain assembly jobs as a result of compliance with union contract requirements, or it could be caused by parts of inferior quality bought from a new vendor. By thus isolating indirect costs that need special examination, one is able to provide a means for improving the control over overhead. Another important use of trend analysis is in forecasting overhead costs. Such forecasts assume that relationships observed in the past will continue in the future. They are most likely to be reliable when they are within the

general range of the historical data. If changed conditions or circumstances are predicted, such as operating efficiencies or changes in plant location, overhead projections based on historical data may require adjustment to reflect the related changes in expected costs.

As we discussed in an earlier chapter, overhead expenses are often divided into fixed and variable cost components based on the pattern of behavior of the costs over production or volume. From an overhead cost control standpoint, a comparison of the dollar amounts for fixed costs incurred over time may prove beneficial. These expenses should remain about the same from one period to the next. As an example, the cost of depreciation charged to the fabrication shop and the equipment within the shop usually would not be expected to vary by much simply because the company forecasts an increase in fabrication work for the coming year. The difference in forecasted cost of depreciation and the prior year's depreciation could be for such factors as asset purchases and retirements, differences in depreciation rates, or organizational changes. It is possible that there could be very few or no differences if straight-line depreciation was being used and no new equipment was being installed. This kind of comparison can often identify errors made in and recording overhead costs. Such dollar comparisons from one year to the next are a useful tool to evaluate other overhead costs, particularly the capacity-related costs such as rent, lease, insurance, real estate taxes, and property taxes. However, if contractors are making significant changes in their fixed assets, a very detailed fixed asset tracking system is usually required to ensure that overhead costs are properly accounted for and controlled.

MANAGEMENT METRICS

Based on discussions with personnel in the defense industry who are actively involved in ana-

lyzing overhead costs, several overhead management indicators or metrics have proven to be effective in identifying overhead control problems.

Indirect labor is usually one of the largest cost elements categorized as overhead in most overhead cost pools (i.e., engineering, fabrication, assembly). The ratio of indirect labor costs to total overhead costs in each cost pool is a common overhead metric and it often accounts for one quarter or more of all overhead costs. Many believe that if you can control indirect labor, you control overhead. Consequently, in most companies, the authority for hiring any new indirect employee is often at a high management level.

Contractors often compute various factors for use of direct and indirect labor. These are often unique to a company, but a rather common method for computing a utilization factor is to compute the ratio of indirect labor, after subtracting out vacation and leave time, to direct labor. Some contractors also compute effectiveness factors of total indirect labor divided by total direct labor. Overtime charges are often major contributors to overhead and are monitored very closely through the use of a ratio of overtime percentage worked for both direct and indirect employees. Idle, waiting, or nonproductive time is very closely monitored by the ratio of such time to total direct labor.

Indirect labor charges are numerous and highly varied in nature, and if a detailed cost analysis of the charges is required, these costs must be broken down into logical components. For example, the compensation of managers, secretaries, supervisors, leadmen, and various administrative support personnel in each overhead pool may be found in indirect labor charges. Such costs must be identified by labor category, by functional organization, and analyzed into variable and fixed components. The ratios of

each category to the overhead allocation base, such as direct labor dollars, can thus be computed and compared with similar historical ratios used for overhead forecasting.

The analysis of head count information is thought to be extremely important and is widely used by defense contractors in controlling overhead costs. Monthly and weekly reports are usually provided to management that cover all aspects of manpower status. Overhead cost control information typically supplied includes the ratios of management to nonmanagement employees, professional to total employees, indirect to direct employees, hourly to salaried employees, contract or purchased employees to total employees, and leadmen to production workers. The current status of any new employees to be hired is very closely monitored, often on a daily basis.

Fringe benefits usually are included in overhead cost and include the benefits for both direct and indirect employees. A separate analysis of fringe benefit costs is usually made for hourly and salary employees because they often have different benefit packages. These costs are very significant and may account for as much as one-half of regular pay for all employees. For overhead cost analysis purposes, contractors typically break down fringe benefits as a percentage of total salaries and wages with a separate ratio computed for the costs of health care, workers' compensation, pensions, life insurance, sick pay, vacation pay, holiday pay, savings plans, and social security taxes.

Capacity- or facility-related overhead costs, such as depreciation, maintenance, insurance, and property taxes, are often monitored based upon a ratio of cost per square foot of occupied space. Other typical management tools include looking at the square foot occupancy per employee, telephone lines per employee, repair and maintenance per machine hour, power cost per

operating hour, and equipment downtime per operating hour.

Overhead metrics used in the materials overhead area (often called materials handling) includes total people working in the materials handling function as a percentage of total company employees, materials handling cost per unit shipped or received, freight cost per unit shipped or received, shipping and receiving per ton handled, number of people in purchasing as a percentage of total materials purchased, and purchasing costs per purchase order. Examples of other significant overhead costs that are monitored using metrics are quality assurance as a percentage of production, computing cost per employee, training costs per employee, travel cost per employee, consumable supplies per direct labor hour, perishable tools per direct labor hour, office supplies per employee, and graphics cost per employee.

In analyzing general and administrative expenses, several ratios are used because of the broad nature of this expense pool. Examples are general and administrative expenses as a percentage of sales, personnel classified as general and administrative as a percentage of total company personnel, and employees in contracts, accounting, legal, and human resources as a percentage of total employees. Certain large administrative expenses are tracked with ratios such as personnel cost per employee hired, billing cost per invoice processed, and payroll costs per employee serviced. Selling and marketing expenses are often broken down into direct selling and sales administrative or support expenses and separately monitored as percentages of sales or profit. Order processing is sometimes reviewed based on cost per order processed. Independent research and development and bid and proposal expenses are large indirect-type expenses, usually classified as general and administrative expenses, that are often tracked based on ratios such as cost as a

percentage of sales or profit, cost per product sold, cost per value of new contracts received, or cost per employee.

Contractors frequently prepare graphs to identify overhead cost trends and departures from historical patterns for attention of management. Typical of such graphs are both estimated and actual plots over time of monthly and cumulative overhead rates, overhead expense dollars, and overhead allocation bases. Other graphs often prepared monthly because of the significant dollars involved are estimated and actuals for independent research and development expenses, bid and proposal expenses, indirect labor, and employee head count.

The use of various overhead ratios or metrics, along with trend analysis, provides a ready means of focusing attention on those costs that are deviating from experienced trends and that require some degree of special investigation. It should be emphasized that overhead metrics cannot be used blindly. Often there are other factors that may have a significant meaning when comparing ratios, such as changes in production methods or processes, organizational changes, changes in employee classifications (direct or indirect), certain unusual or nonrecurring costs, inflationary factors, and accounting changes.

REGRESSION ANALYSIS

The statistical technique of regression analysis is sometimes used in managing indirect costs. A detailed mathematical explanation of the technique is beyond the scope of this guide; however, we can briefly summarize how it may be applied in the analysis of overhead costs. Regression analysis is concerned with deriving mathematical equations that express certain functional relationships among variables, such as the relationship of an indirect cost (a dependent variable) to a direct cost allocation base

(an independent variable). Statistical correlation data provides information for evaluating how closely the dependent and independent variables are related. Commercial software packages now available perform regression and correlation analysis computations.

Simple regression analysis, so named because it only has one independent variable and one dependent variable, is sometimes used for forecasting overhead costs. The independent variable could be any direct cost, such as direct labor dollars, direct labor hours, or machine hours, and the dependent variable would be overhead costs. As an example, the overhead forecast in a manufacturing overhead pool could be expressed by this mathematical equation derived through regression analysis:

$$\begin{aligned}\text{Forecasted overhead} &= \$1\text{M (Fixed cost)} \\ &+ (\$2.6) \text{ (Forecasted machine hours)}\end{aligned}$$

The \$1M of fixed overhead cost would occur at zero machine hours while the coefficient of (\$2.6) would be derived from the slope of the regression line computed based on historical statistics.

Multiple regression analysis is often more accurate than simple regression analysis. It involves evaluating the relationship between a dependent variable, such as overhead costs, and two or more independent variables. It is used in those cases where the cause and effect relationship based on a single independent variable is found to be insufficient. Multiple regression analysis could be used, for example, to forecast manufacturing maintenance hours based upon the variables of production direct labor hours, machine hours, and square footage of production floor space serviced by maintenance personnel.

An application for regression analysis could be to test for reasonableness of estimated overhead

rates forecast for many years into the future. Overhead rates vary in response to numerous causes but because many overhead costs are fixed (as discussed in Chapter 2 involving cost behavior), the level of predicted operations is very significant. Overhead rates usually are lowest when a facility is operating at capacity, and increase substantially when operating levels are reduced. This relationship becomes significant in forecasting overhead costs for large programs that involve performance over long periods. In these cases it is necessary to predict overhead rates many years in advance on the basis of operating levels projected for these years.

Regression analysis is also used for testing the reasonableness of the relationship of a certain direct cost, such as direct labor hours or machine hours, as the basis for allocation of overhead to cost objectives. The direct cost allocation base should be a primary cost driver or an activity that causes the overhead cost to be incurred. In other words, there should be a strong causal relationship between the direct cost allocation base used for allocation of overhead and the overhead costs incurred. Although there will probably never be a perfect correlation between any overhead pool and any direct cost allocation base, some allocation bases will provide a higher degree of correlation than others. One of the statistics provided by regression analysis, the coefficient of determination, measures the extent of the relationship between two variables. The value of the coefficient of determination is always between zero and 1. The closer the value is to 1, the stronger the relationship between the two variables. The higher the correlation, the stronger the linkage of indirect costs to direct cost, thus providing a more accurate allocation of overhead.

Based on discussions with industry personnel who are actively involved in managing overhead, we find that regression analysis is not used

extensively for forecasting defense contractor overhead because of the volatile nature of the business. The use of regression analysis assumes that overhead costs will be the same in the future as the past. If a change in cost behavior of an expense is foreseen, regression analysis applied to historical data will not provide useful results and some other method of forecasting should be used. In other words, what one knows about the future is far more important than the prior historical data. Statistical techniques are highly valid in characterizing prior history but they cannot foresee the future. In the opinion of industry personnel we interviewed, constant changes in the defense business—such as large swings in the business base, technological changes, manufacturing process changes, creation of new functions, transfers of functions between overhead pools, reorganizations, and acquisitions—create numerous problems in obtaining meaningful overhead forecasting results with regression analysis. Consequently, judgment and experience combined with an analysis of future program requirements are considered far more valuable than statistical techniques for forecasting overhead. In practice, regression analysis is used more for testing the reasonableness of other forecasts developed by management.

INDUSTRIAL ENGINEERING ANALYSIS

We have already stated that one of the largest costs included in all overhead pools is indirect labor. Such costs may be so significant as to warrant special study or review. One of the best ways to analyze and control indirect labor costs is to use the industrial engineering staff, assuming that the benefits would clearly outweigh the costs. Industrial engineers can be called upon to analyze the indirect tasks performed in various indirect functions similar to the way direct tasks are examined on the production floor. Defense contractors sometimes use industrial

engineering techniques in the study of various indirect and production processes with the objective of improving the efficiency of their operations and activities.

Industrial engineers use scientific methods, such as time study, work sampling, and standard data, in evaluating specific indirect labor functions performed by various departments. The analysis is output-oriented, with an emphasis on the identification of non-value-added activities. Essentially, industrial engineers are determining if certain indirect functions are necessary, desirable, or simply nice to have. They are also concerned with analyzing how the functions are currently being performed and whether the most efficient methods are being used. The engineering analysis of indirect or overhead type functions could well lead to savings as a result of: combination of certain functions, simplification of work processes, elimination of administrative bottlenecks, elimination of unnecessary equipment, reduction of reporting requirements, introduction of automation, and decisions to purchase rather than buy services. A fresh, independent, and objective look at overhead is often desirable because indirect functions are sometimes originally staffed based on meeting peak workload requirements. Consequently, indirect employees may not be efficiently used when normal operations are resumed or when there is a reduction in operational requirements.

CONTRACTOR ACTIONS TO REDUCE OVERHEAD

Our research efforts showed that defense contractors are very concerned about increasing overhead rates. Generally, there has been a severe deterioration of the business base, which naturally causes a significant increase in overhead rates. Contract terminations and major quantity reductions that have occurred in the last few years have significantly affected over-

head rates, and remaining contracts have been forced to absorb additional overhead costs. As we have previously discussed, that is the way indirect or overhead cost allocation works. There is current defense contractor management concern that high overhead rates could cause additional increases in weapons systems costs and result in further program reductions in the future. Each of the contractors we interviewed in our research efforts has faced severe problems in managing indirect or overhead costs. Overhead costs, which are often linked to capital assets, simply cannot be eliminated quickly. Vacating leased space, consolidation of functions, and possibly, even the selling of land, buildings, and equipment, takes time. Large, defense-oriented facilities often do not have multiple uses, and a marketability problem usually also exists because of the local economic impact of defense program cutbacks.

Defense contractors realize that overhead costs must be reduced in order for them to be competitive, and they are serious about cutting these costs. Each contractor we interviewed has had to make tough decisions involving people, many of whom have worked for them for decades. It is not uncommon for a defense contractor to have lost one-half of his people and one-half of his business base within the past three to four years.

In order to deal with the critical overhead problem, all of the defense contractors we interviewed had set up special project teams to study what could be done to reduce these costs. Special efforts were made to ensure that the teams were interdisciplinary in nature with all organizational elements and functional areas represented. Generally, the teams included lower level managers, or those being burdened with overhead, as well as upper level managers. Efforts were made to encourage team members to get out of a "stovepipe mentality" and to take an objective, fresh look at the problem from a

total company perspective. In some cases, the teams were given specific targets by top management as to certain overhead cost reductions that had to be achieved.

The recent approaches used by defense contractors in cutting overhead costs have been genuinely innovative. Some contractors instructed their teams that a totally new way of thinking about overhead costs was required, instructing overhead study team members that "there is no such thing as a noncontrollable cost! If you, as operational managers, cannot control overhead, who can? There is no such thing as a fixed cost! Nothing is fixed, we can eliminate it. There is no such thing as an allocated overhead cost that you must accept! The control of overhead cost is the responsibility of the person being charged with it!" Lower level operational managers were told that no cost is free and that overhead is not peanut butter to be spread out. Managers were instructed that if they did not accept any overhead cost allocation as being worth the amount allocated to them, they were authorized to go back into the organization allocating the cost and see what could be done about reducing or eliminating it! Essentially, management was directing the project teams to challenge every indirect function performed and to recommend to them, using a bottoms-up approach, what could be done collectively to cut overhead.

The focus of the detailed studies of overhead was to dissect the hundreds of indirect expenses and to identify why the cost was incurred. Efforts were made to identify indirect function "core competencies" and to eliminate any non-value-added functions or activities. Loral Imaging Systems went a step further and analyzed overhead functions to pinpoint for management awareness those specific indirect tasks that would no longer be performed if cost-cutting targets were met.

Some contractors have made concerted efforts to examine the various overhead or indirect cost-oriented business processes within their corporations with the objective of identifying similarities, differences, and efficient or inefficient practices at various business segments. For example, the Boeing Defense and Space Group, as part of its overhead study efforts, conducted a rigorous review of internal practices within its five major divisions, with the objective of identifying the "best in class" for certain functions. The analysis was made of functions such as manufacturing support, materials handling, quality assurance, inventory control, billing, scheduling, and the business process used for managing overhead itself. The "best in class" analyses have resulted in significant productivity improvements and overhead cost reductions. In addition, the wide-scale efforts have promoted management objectives of standardization, consistency, and continuous improvement.

Special projects to study overhead in many companies resulted in management decisions to purchase certain services that traditionally had been performed in-house. Examples of such services that were previously performed as overhead functions, but are now being partially or totally purchased at lower cost, are data processing, travel management, processing of insurance claims, legal services, photography and graphics, janitorial services, upkeep of grounds and roads, cafeteria operations, and guard services. We were advised that the initiative to purchase such services from outside sources also gives defense contractors greatly increased management flexibility by converting large, fixed cost, overhead elements into a more variable cost. In some cases, the requirement for security guards was eliminated entirely with the installation of automated security systems.

Numerous efficiencies and reductions in overhead costs have been brought about as a result

of overhead study team efforts to consolidate various operations. Consolidation and reorganization efforts have resulted in the sharing of resources through the combining of support functions, such as transportation, facilities engineering, security, procurement, finance, and human resources. Marked reductions have taken place through the elimination of indirect employees as a result of reductions in supervisory and management personnel, and other indirect functions, such as various staff and service activities in engineering and manufacturing. Indirect labor is considered to be the initial target for overhead cost reduction since it is such a large cost driver. Contractors have been very actively involved in consolidating computer and data processing centers. The number of locations and major data processing systems have been combined in many cases to effect overhead cost savings. In addition, various data processing functions within engineering, operations, and finance that have been operating independently are now consolidating to become less costly and more efficient. The combining of computer centers has resulted in the reassignment and release of computer equipment, thus reducing depreciation cost. Boeing was able to effect large savings in overhead by closing or consolidating numerous engineering laboratories. The sharing of resources and consolidation efforts resulted in reducing the number of labs by more than 60 percent in a four-year period.

A concentrated effort has been made to identify and eliminate facilities that are not optimal. For example, Sikorsky made certain consolidations in their feeder plants, transportation, and warehousing activities that significantly reduced their square footage requirements for materiel functions. They also substantially reduced the number of indirect employees in transportation functions. Concerted efforts have been made to eliminate leased space, transfer buildings to corporate commercial segments,

and to sell some facilities, if possible. As an example of these efforts, Pratt & Whitney has made considerable progress by reducing their leased space by more than 50 percent within the past four years.

Contractors have also effected overhead cost savings and increased the utilization of assets by vacating buildings. The result is the reduction of heating, air conditioning, and maintenance expenses until the space can be utilized, subleased, or leases terminated. In addition to vacating numerous buildings, contractors are also reducing individual space allocations for their employees.

One would expect to see further consolidation efforts to reduce overhead and increase efficiency. These efforts could include the consolidation of overhead pools. A future problem may very well be in manufacturing overhead-related pools, because large-volume defense production work has been significantly curtailed. Recent defense contractor acquisition and merger activity will probably increase major consolidation efforts between as well as within companies.

Efforts to reduce overhead cost often mean staff cuts. Companies offer incentives for early retirement, reduce the number of indirect employees by increasing the span of control of supervisors and managers, eliminate overtime pay for salaried employees, defer or lengthen the period for pay increases, and eliminate some holidays. In order to reduce overhead but still not lose key experienced employees, Pratt & Whitney was able to furlough certain employees, particularly in the test areas, for a period of several months. Sikorsky was able to reduce fringe benefits by introducing flexible benefit plans. These plans provide a framework whereby an employer can control or cap cost growth by limiting the allowances provided to the employees to purchase benefits, while giv-

ing the employees some flexibility to tailor benefit packages to their own individual circumstances. Often, the flexible benefit allowance doesn't totally cover benefits purchased under the flexible plan and the employee contributes to the costs through payroll deductions.

Defense contractors have made many efforts to reduce overhead costs through better management of employee medical expenses. Most significantly, efforts have been made to increase employee contributions through payroll deduction, increase deductible amounts, increase copayment amounts, encourage employees to shift to lower cost HMOs, require second opinions for some surgeries, and give employees incentives to choose preferred providers with their less expensive negotiated rates. In one case, at the suggestion of employees on special overhead study teams, on-site doctors and nurses were eliminated in order to cut overhead costs.

Other overhead cost containment measures have included substantial reductions in travel expenses, training, perishable tools, outside services, use of voice mail to reduce secretarial support, elimination of executive dining rooms, increased use of teleconferencing, elimination of copiers and telephones, and energy conservation measures. As a result of overhead study team recommendations, special management approval is now often required in advance of incurring certain overhead expenses.

There has been a strong effort by defense contractor management to constrain capital spending in order to reduce overhead costs. It is not unusual for defense contractors to have cut capital spending by 50 percent or more within the past three to four years. It is very difficult to get a large capitalized project approved in the current environment; often it must be for asset replacement or for safety reasons. At best, de-

fense contractors expect capital spending to remain flat for the next several years.

To cut their general and administrative expenses, most defense contractors have significantly reduced their IR&D and B&P expenses. Since new programs and bid opportunities are minimal, there is a strong conservation of IR&D and B&P discretionary funds. Companies are now focusing on core technologies and pursuing projects in only those areas. It is getting much tougher to get new projects approved and generally, they must be related to an existing product line. For example, the Loral Imaging Systems Division recently set up a "strategy board" to review each project in detail prior to approval. Since IR&D and B&P expenses are usually included in the G&A expense pool, the president of the company is often the person responsible for reducing this overhead cost.

Defense contractors are now making significant efforts to achieve more direct identity of costs by reclassifying employees from indirect to direct to provide more visibility and control. Examples of such functions that are being changed in some companies from indirect to direct charging functions are program management and administrative support, cost schedule and control, engineering administrative support, industrial engineering, expediting, dispatching, and certain production liaison functions. Of course, companies differ significantly as to how they individually classify these functions. Some companies are also moving fringe benefits from being an indirect cost to being a direct cost for salaried, hourly, and contract job shop employees. The shift from indirect to direct will have a significant impact on reducing overhead rates, because the labor will be in the cost allocation base, or denominator, rather than in the indirect overhead cost pool (numerator). As we have previously discussed, such shifts from indirect to direct do not reduce total cost, but defense

contractors feel that it improves the accuracy of cost allocations.

We were advised by upper levels of management that the special project, large-scale study efforts were very beneficial, producing many cost cutting ideas. The study team approach was also instrumental in educating employees about the importance of controlling the many indirect costs and in establishing a sense of responsibility for overhead at lower operational levels. After the special projects were completed, many employees have continued to voluntarily come forth with overhead cost-cutting ideas. but while the bottoms-up, special project team approach was useful, it simply did not cut overhead enough.

We were advised that although actions to cut overhead costs through the bottoms-up approach were ambitious and aggressive, a top-down approach was necessitated by the urgency to make major overhead cost reductions. DoD budgetary forecasts called for additional reductions in the business base, and given this downturn, defense business segments were receiving increasing pressure from the corporate office on profitability concerns.

Each of the contractors interviewed had to iteratively continuously cut overhead costs and reduce rates in order to be competitive. So overhead cost reduction was placed directly on the plate of top management. Given the limited opportunities for winning additional business, top management capped overhead at certain rates deemed necessary to maintain competitiveness during expected lean times in the future.

To maintain a strong emphasis on reducing overhead and to elevate the sense of urgency of competitive overhead rates, most contractors have set up highly visible "control rooms." Given attention-getting names such as "Break-

through Room," "Room X," "Engineering Overhead Control Room," or "Management Control Room," they are established to conduct overhead reduction team meetings and for posting a myriad of data relating to cost control. Typically, on a monthly basis, contractors post on the walls of the control room large charts that show the current month and year-to-date overhead performance for each overhead pool.

The Boeing Defense & Space Group (D&SG) took particularly strong steps to firmly establish accountability for managing overhead costs by designating specific executives as being responsible for each of its many overhead cost pools. Their view is that once executive responsibility for overhead is clearly established, more positive steps can be taken to improve the effective utilization of indirect activities. Each overhead pool in the Defense & Space Group organizational structure has an "owner." The owner is the designated pool manager, normally a vice president, but always a senior operational manager, who is responsible for managing the pool and achieving the committed performance levels. It is interesting to note that pool managers are operational personnel and not financial personnel. This indicates that a significant change has occurred: Senior operational managers, not financial personnel, are required to explain variances in overhead to top management. A significant factor in evaluating management performance and in determining incentive pay is the ability to manage overhead costs. Financial personnel assist each of the overhead pool managers in interpreting and explaining accounting systems and data, but operational managers are the ones accountable. An "Overhead Pool Responsibility Matrix" is maintained by D&SG to ensure the proper assignment of responsibility for pool management and an individual called a "finance focal point" is designated to assist the overhead pool manager by providing accounting support. Each overhead pool manager is accountable to se-

nior D&SG management for performance to internal organizational overhead budgets and is committed to achieving the overhead rates. Overhead pool managers and finance focal points are responsible for documenting and supporting the accuracy, currency, and completeness of their overhead forecasts and for providing justification for the various calculations and values contained in rate computations. It seems that the practice of involving operational personnel in overhead management is exceptionally beneficial, since such a large number of indirect costs are discretionary in nature and considerable management judgment is required. Senior operational managers have the knowledge and experience to make tough decisions that financial personnel do not have.

Recently, the concern for "affordability" of overhead rates has lead to a relatively new management philosophy regarding the control of overhead costs. The new concept is referred to by some as the "100% variability of overhead rule": There is no such thing as a fixed cost and overhead does not have to be carried if the business base declines. Stated differently, all overhead costs should be viewed as variable costs and if the business base declines by 20%, overhead cost must also be reduced proportionately, or by 20%, in order to "hold the rate."

The concept represents a direction from top management that overhead pool managers must be committed to maintaining a constant overhead rate in order for the company to be competitive. In other words, they cannot afford for overhead rates to go any higher. If the business base is reduced, overhead pool managers must find ways to cut overhead costs a sufficient amount to keep the rates from increasing. For example, suppose that the current manufacturing overhead rate is 200% derived by the indirect manufacturing overhead expenses of \$400M divided by a direct labor dollar base of \$200M. The indirect overhead expenses are

made up of fixed costs of \$160M and variable costs of \$240M. Therefore, the variable overhead is \$1.20 for every \$1 of direct labor or \$240M divided by \$200M. Consider that the contractor loses a major contract and the business base is reduced by \$60M for a 30% reduction in burdenable direct labor. Traditionally, the new forecasted manufacturing overhead rate would normally be expected to jump to 234% derived by dividing the new forecasted overhead costs of \$328M by the new direct labor base of \$140M. The new base would be 70% of \$200M or \$140M. The new overhead pool expenses would be made up of fixed overhead of \$160M plus the revised variable overhead of \$168M (revised base of \$140M times the variable overhead rate of \$1.20 per direct labor dollar). However, under the concept of the "100% variability of overhead rule," the overhead rate must be held constant at 200% in order to be competitive. This means that fixed costs must be cut substantially to make this happen. In fact, fixed costs would have to cut by \$48M, a formidable task. However, the ultimate goal of management is to treat fixed costs and semivariable costs as totally variable costs.

Although there can be approved exceptions to the rule in some circumstances, it is clear that top management expects overhead pool managers to think in terms of 100% variability of overhead costs. Previously, overhead pool managers were held responsible for only overhead expenses. Now they are responsible for maintaining the overhead rate, which means that they are responsible for the business base as well as the overhead expenses. Some contractors report very favorable results with this concept. For example, if the business base declines, what can be done to offset it? If costs go up in one area what can be done to cut or trim overhead costs in other areas? In the past, managers tended to manage by direct labor hours; now they manage to a rate and as a result an increased emphasis must be placed on overhead.

We were told that "holding the overhead rate" has been incorporated into management score cards. Whether this concept is achievable remains to be seen; however, it certainly creates tremendous pressure on managers to focus on overhead cost control.

Some contractors report that there has been somewhat of a cultural change in dealing with the government in connection with managing overhead. They are working more closely with the government on the joint objective of avoiding any major surprises involving increasing overhead costs. In some cases, government personnel from the local DCMC cognizant office meet on a regular basis with overhead pool managers at the company's monthly overhead meetings to discuss reasons for cost variances. Previously, the contractor had mailed certain overhead reports to the government for review. A significant improvement in maintaining currency regarding overhead problems has been noted by government personnel and a more open, trusting relationship between the two parties seems to exist. In addition, contractors report that government people seem to be more

focused on understanding their business processes as a means of monitoring overhead costs rather than relying on reports previously created for their use.

In summary, it is apparent that defense contractors are very concerned about the significant problem of a drastically declining business base and the resultant impact on overhead rates. The problem could, if not addressed by management, result in increased costs to program offices on flexibly priced contracts and spiraling, noncompetitive, overhead rates for defense contractors. Contractors have studied and continue to study what can be done. They are cutting overhead costs, reducing their workforces, eliminating excess capacity, and consolidating operations. Significant reductions are being made in discretionary spending through cuts in capital spending on plants and equipment, machinery and tooling, independent research and development, and bid and proposal expenses. Concerted efforts are being made to streamline operations by examining the best and lowest cost business practices in numerous functions throughout the corporation.

6

IMPACT OF GOVERNMENT CONTRACTING REQUIREMENTS

INTRODUCTION

The reader should recognize that there is a very significant difference in the way prices for products and services are arrived at in the commercial versus government contracting marketplaces. In the commercial environment, the price paid by the customer is usually always determined by the demand for the product in an open, competitive marketplace. In pricing its product for that market, commercial companies initially estimate the direct material and direct labor required, apply all related indirect rates, and then they add a margin to cover the expenses of marketing, sales, research, development, and administrative expenses. The initial pricing estimate is compared with competitive prices and market price adjustments are then made. The costs of marketing, sales, research, development, and administrative expenses are viewed as "period costs," or those costs that are written off against profit on the financial statements in a lump sum for each fiscal period. Typically, these period costs are not allocated in any way to specific products or contracts. Customers in the commercial marketplace are interested only in the price they are paying and not in the breakdown of the direct and indirect costs within the producing company. Furthermore, even if a customer was interested in a product cost breakdown, he has no legal right to see the cost data. However, as we often find in the acquisition of weapon systems, where competitive prices do not exist, the breakdown of the cost becomes very important.

Under a cost-based pricing methodology, which is used extensively in weapons systems procurement, a price must be negotiated with each customer for each contract. Under cost-based pricing, the contractor must assign all costs as logically as possible to each contract using a "full costing" concept. The full cost of a contract is the sum of the direct costs plus a fair share of all applicable indirect costs, including the period costs of marketing, sales, research, development, and administrative expenses. Therefore, for the DoD as a customer, the contractor's cost allocation methods play a major role in determining the price of not only cost-reimbursable contracts but any negotiated fixed-price contracts. The type of contract used is a very important factor related to the government's right of access to information on the contractor's indirect costs. We will later discuss in detail the types of contracts used in defense contracting and how this affects indirect rates.

When there is a mix of negotiated government contracts and commercial business in contractors facilities, a need for more accurate cost allocation methodologies (as compared to the commercial business environment) is readily apparent. DoD's concern is that indirect cost allocations should be no more than necessary and government should pay no more than its fair share. Therefore, one should expect considerable involvement by government personnel in the monitoring of indirect cost allocations. An accurate allocation of indirect costs is important because incorrect allocation can

result in charging defense contracts for nondefense-related costs or in one contract subsidizing other contracts through the allocation of a disproportionate share of indirect costs. However, in the interest of working with contractors in a constructive, win-win manner, the contesting of a contractor's methods of allocating indirect costs should only be made if there is a material difference in costs that would result from using different allocation methods.

Significant differences of opinion about the proper allocation of indirect costs where material differences do exist have necessitated the promulgation of numerous government regulations. Essentially, the government cost regulations related to indirect costs are contained in the Federal Acquisition Regulations and the Cost Accounting Standards. The cost principles in the FAR apply to contracts, subcontracts, and modifications when the price is negotiated on the basis of analysis of the contractor's costs. The cost principles apply in determining cost reimbursement, negotiation of indirect rates, and other cost determinations or negotiations required by a contract. We will later discuss the requirements of the FAR in greater detail. The rules governing the applications of CASs for the allocation of indirect costs are considered by many procurement acquisition professionals to be very complex. Nevertheless, unless specifically exempted, all negotiated government contracts or subcontracts of more than \$500,000 million are subject to modified CAS coverage. Full CAS coverage applies if the contractor receives a single negotiated award of \$25 million or more, or had \$25 million in CAS-covered net awards during the preceding cost accounting period and at least one of them exceeded \$1 million. Exemptions from CASs apply to areas such as contracts with small businesses, sealed bid awards, commercial items, and contracts with foreign governments. We will discuss the CAS re-

quirements that influence indirect costs in greater detail in Chapter 7.

Currently, one major initiative of the Defense Contract Management Command (DCMC) is the monitoring of defense contractor indirect costs. DCMC is concerned with the large amount of costs that are tied up in overhead in the defense marketplace where contracts are often awarded on a noncompetitive basis. DCMC is also very concerned with the large reductions in the defense business base that will naturally cause indirect rates to go up. In addition, during the past few years, a change has occurred in the way DoD is contracting for research and development work. This change has placed a major emphasis on using flexibly priced contracts instead of fixed-price contracts. Therefore, DoD is placed in a position of assuming more risk for indirect costs.

RELEVANCE OF CONTRACT TYPE

Because of the complexity of contractual arrangements, the management of indirect costs is far more complicated for firms engaged in government contracts than it is for firms engaged in commercial business. In the commercial environment, contracts are basically all firm, fixed-price agreements. An understanding of the various types of contracts used in government work is vital if one is to recognize the impact that changes in indirect cost rates can have on both the defense contractor and the government. In some cases, increases in indirect costs are totally or partially paid for by the customer—the government.

The type of contract used, which is generally a matter of negotiation, may vary significantly based on the degree of responsibility assumed by the contractor for the costs of performance, including the allocation of an appropriate amount of indirect cost. There is a very large assortment of contract types that can provide

the flexibility necessary to acquire the large variety of products and services the government requires. The objective is to negotiate a contract type that will result in reasonable contractor risks and provide the contractor with the greatest incentive for economical performance. It should be noted that the type of contract used on a given program will often change over time. For example, in the course of a weapons systems acquisition program, changing circumstances may make a different contract type appropriate later on than that used at the beginning of the program. Government contracts are classified broadly as either in the cost reimbursement or fixed-price family of contract types. In between these two basic families are numerous incentive arrangements that consider a sharing of cost responsibility between the government and the contractor.

A cost reimbursement type of contract is used when the cost of contract performance cannot be predicted with accuracy, such as in the development of weapons systems. This is especially true when research and development work is required, performance uncertainties exist, or engineering changes are likely, making it difficult to estimate future costs. In such situations, the contractual scope of work cannot be described adequately enough for the contractor to be willing to guarantee performance at a fixed price. Although the government generally prefers not to use cost-type contracts, such an arrangement permits the government to contract for very complex work that would otherwise present too great a cost risk to contractors. An estimate of total cost, including an appropriate allocation of indirect costs, is necessary under cost-type contracts, for the purpose of obligating funds and establishing a ceiling that the contractor may not exceed. If the contractor exceeds the estimate of total costs, he does so at his own risk. The estimated total cost is also very important for negotiating the fee on the cost-type contract. Of course, esti-

mated indirect rates are used in negotiating cost-type contracts to give the parties an idea of the likely indirect rates that will be realized during contract performance.

There are several varieties of cost reimbursement contracts. Under a cost-plus-fixed-fee (CPFF) contract, the contractor is reimbursed for his actual cost, subject to certain government requirements regarding allowability, plus a negotiated fixed fee. We will later discuss the large numbers of costs that may be unallowable, which generally are of an indirect rather than a direct cost nature. The fixed fee is negotiated at the beginning of the contract and does not change regardless of the amount of actual cost incurred. The fee may be adjusted later, however, as a result of modifications to the work to be performed under the contract. Since the contractor is paid his actual costs for using his best efforts to accomplish the work within the specified time, the CPFF contract provides the contractor with only a minimum incentive to control costs. Therefore, this type of contract results in the government assuming all of the cost risks since the final price is determined after the work is performed and actual costs are known.

A cost-plus-incentive-fee contract (CPIF) is a cost reimbursement contract that provides for a fee adjusted by a formula according to the relationship of total allowable costs to target costs. A target cost, target fee, minimum and maximum fee, and fee adjustment formula are negotiated at the outset. The fee paid to the contractor is negotiated after contract performance and final actual costs are known, using the formula and the minimum and maximum fees. A cost-plus-award-fee (CPAF) contract is a cost reimbursement contract with special fee provisions. The fee has two parts, a fixed portion and a variable portion, to be awarded based on the caliber of performance in specific contract areas, such as quality, schedule, creativity, and

cost effectiveness, as determined by the government. Recently, some program offices have been placing a great deal on emphasis on establishing award fee factors for the contractor's ability to control indirect costs.

It is important to note that, from the government's perspective, a cost reimbursement contract can be used only when the contractor's accounting system is adequate for determining costs applicable to the contract and appropriate government surveillance during performance will provide reasonable assurance that effective cost controls are used. Under cost reimbursement contracts, the contractor in the final analysis is reimbursed its actual, not its estimated, indirect costs. From the contractor's perspective, if he should experience a large increase in indirect cost rates between the initial pricing of the contract and the negotiation of final actual indirect rates, the negative financial impact would only be a reduction in fee under a cost plus incentive fee arrangement. The government would pay the cost of the increase in indirect rates. Therefore, from the government's perspective, the higher the value and percentage of cost reimbursable contracts, the greater the need for review of the contractor's management controls over indirect costs. We will discuss final indirect rates in Chapter 8, where we discuss the indirect rates contractors use in dealing with the government, forward pricing, billing, and actual rates.

The fixed-price contract is suitable for acquiring commercial products or for acquiring supplies or services on the basis of reasonably definite functional or detailed specifications, when the contracting officer can establish fair and reasonable prices at the outset. The fixed-price family of contracts may provide for a firm-fixed price or an adjustable fixed-price. The firm-fixed price contract provides for a price that cannot be adjusted because of the cost experience of the contractor in performing the con-

tract. However, the fixed-price contract with an economic price adjustment provision leaves the contract open for later adjustment of contract price based upon the occurrence of contingencies specifically defined in the contract. This type of contract is applicable to circumstances where uncertainty exists as to the stability of market or labor conditions (e.g., with inflation or cost of living adjustments).

The fixed-price-incentive (FPI) contract is a fixed-price contract whose price is also adjustable by a provision that adjusts profit according to a formula based on the relationship of final negotiated total cost to target cost. In an FPI contract, the following items are negotiated: target cost, target profit, price ceiling, and a formula for establishing final profit and price. After performance of the contract, final costs are negotiated and the contract price is established by using the formula. If the final costs are less than the target costs, then the final profit is more than the target profit; on the other hand, when final cost is more than target cost, application of the formula results in a final profit less than the target profit, or even a loss. If the final negotiated cost exceeds the price ceiling, the contractor absorbs all costs above the ceiling as a loss. It is important to note that even under the FPI contract, where there are cost overruns, the contractor will be paid his final allowable actual costs, including an appropriate share of indirect costs, up to the negotiated ceiling amount. However, from the contractor's perspective, the management of the indirect cost estimating process is more stringently tested with the fixed-price family of contracts. Under fixed-price contracts, the contractor's development of indirect cost rates should reflect the fact that he bears greater risk for both cost and performance. This type of contract provides maximum incentive for the contractor to perform efficiently and to control indirect costs. It also imposes a minimum administrative burden on both the government and the contractor.

Therefore, from the government's perspective, fixed-price contracts are preferred when contract costs can be estimated with reasonable accuracy and performance requirements are reasonably certain.

In summary, under cost-type contracts, the government absorbs all increased costs that result from indirect rate increases occurring during contract performance (that are over that rate negotiated at the time of contract award). Under firm-fixed-price type contracts, the contractor absorbs all increased costs due to indirect rate increases during contract performance. Of course, the opposite would be the case if indirect cost rates were to decrease. Under cost-type contracts, the government would receive the benefit through decreased cost, while under firm fixed-price type contracts the contractor would receive the benefit through increased profits. For a more detailed discussion of contract types, see Part 16 of the Federal Acquisition Regulation.

FEDERAL ACQUISITION REGULATION REQUIREMENTS

As we briefly discussed in Chapter 2, one of the most significant influences on indirect costs in defense contracting is the category of unallowable costs established by the FAR. There are many costs that the government will not pay for various reasons. For example, the government will not pay for interest cost even though it is commonly recognized as a normal and necessary business expense. In fact, interest expense is such a significant amount that it is separately called out as a major expense on published corporate financial statements. But from the government perspective, paying for interest costs would amount to favoring those companies that financed their business with debt as opposed to stockholders equity. The company could simply pass on the interest charges un-

der negotiated contracts to the government, whereas the company that financed with stockholders equity would not have incurred any interest costs. Another example of a common business expense that is unallowable is contributions made to charitable organizations. If the government paid for contributions to charities by defense contractors, in effect the contractor rather than the government would be deciding which charities should receive taxpayer dollars. One would expect the allowability of costs always to present a problem for defense contractors because the business is often too complicated to perform on any basis other than some type of negotiation based on costs.

The rules governing the allowability of costs for defense contractors are contained in the FAR Part 31, and in DoD Federal Acquisition Supplement (DFARS) Part 231. In practice, these regulations are referred to as the "cost principles"—but they are equally applicable to the pricing of fixed-price contracts whenever the price is based upon cost data. Within the past few years, Congress has become very involved in setting rules on the allowability of contract costs. The basis for new or changed cost principles often originates with legislative changes. For example, changes occurred in the FARs after the infamous "dog kennel charges" claimed by a General Dynamics executive, disclosed during Congressional hearings, and after the Navy "Ill Wind" investigation into the activities of defense consultants. These horror stories brought about legislation that resulted in more complex regulations governing indirect costs, more unallowable costs, and a requirement for contractors to certify their indirect cost claims. As a consequence, contractors are now at risk of being assessed severe penalties—such as a doubling of the amount of unallowable costs taken out of their indirect cost claims.

Cost Allowability

The criteria for the allowability of costs is defined in FAR 31.201-2, which lists factors to be considered in determining whether a cost is allowable:

- reasonableness;
- allocability;
- cost accounting standards, if applicable, otherwise generally accepted accounting principles and practices;
- terms of the contract; and
- limitations established by FAR subpart 31.2, "Contracts with Commercial Organizations," which discusses selected costs, including numerous unallowable costs.

Reasonableness

In practice, applying the reasonableness criteria as defined in FAR 31.201-3 is not easy. What is reasonable depends on many considerations and circumstances involving the nature and amount of the cost in question. What is considered reasonable to one person may be completely unreasonable to another. From the government's perspective, reasonableness of specific costs is of particular concern in connection with contracts awarded without competitive forces present. The use of judgment is required in determining the reasonableness of a given cost and consideration should be given to:

- whether the cost is of a type generally recognized as ordinary and necessary for the conduct of the contractor's business or for the contract performance;
- generally accepted sound business practices, arm's length bargaining, and federal and state laws and regulations;

- decisions that a prudent businessman would make under in competitive circumstances; and

- significant deviations from the established practices of the contractor.

When a cost is questioned by the government, the burden of proof is upon the contractor to establish that the cost is reasonable. An example of the government questioning an indirect cost based on reasonableness would be a case in which a contractor is charging for use of its own corporate aircraft when commercial flights are available at lesser costs.

Allocability

Basically, allocability means that each contract should receive only its fair share of all costs. Some connection must be shown between each contract and any costs that are assigned to it. The allocability of indirect costs is an extremely sensitive area, particularly when there is a mix between government and commercial products or when there are different contract types. The government's aim is avoid paying costs incurred primarily for the benefit of a contractor's commercial contracts.

Detailed regulatory guidance relating to allocability is provided in FAR 31.201-4. A cost is allocable if it is assignable or chargeable to one or more cost objectives on the basis of relative benefits received or other equitable relationship. Subject to the foregoing, a cost is allocable to a government contract if it:

- is incurred specifically for the contract;
- benefits both the contract and other work, and can be distributed to them in reasonable proportion to the benefits received; or

- is necessary to the overall operation of the business, although a direct relationship to any particular cost objective cannot be shown.

It should be noted that the FAR cost principles refer in some cases to the required use of certain cost accounting standards (CASs). Cost accounting standards contain significantly more guidance related to allocability than that found in the FAR. We will cover the many requirements of the CASs that affect indirect costs in more depth in Chapter 7. Briefly, all contracts subject to CASs must meet more restrictive requirements concerning how costs are allocated to contracts. However, even under the CASs, the contractor still has considerable options in determining the methodology for allocating indirect costs. Since each contractor allocates indirect cost under his own accounting system, government personnel must evaluate whether the allocation bases used by the contractor for the allocation of indirect costs are equitable.

Generally Accepted Accounting Principles

Generally accepted accounting principles (GAAP) provide the overall framework for all accounting, however they were developed to provide guides for acceptable financial reporting and not detailed cost accounting practices. The financial reports are primarily for stockholders, investors, and others interested in the financial results of the corporation as a whole. Such financial reporting principles focus only on cost allocations between fiscal years to assure that profits and losses are fairly stated for each year. GAAP does not delve into the acceptable methodologies for allocating indirect costs to specific cost objectives, such as defense contracts. In fact, one of the primary reasons for the creation of the Cost Accounting Standards Board (CASB) was the inadequacy of GAAP for defining the criteria for acceptable bases for cost accounting relating to defense contracts. Although GAAP is defined in the

FARs as a requirement for allowability of contract cost, the principles are of very limited value in establishing allowability.

Contract Terms

Some costs may be specifically called out in a contract as unallowable by mutual agreement between the contractor and the government at the time the contract is negotiated. The contract may also provide specific criteria that must be met before a cost is considered allowable or it may specify certain limits that cannot be exceeded. For example, a contract may state that certain large-scale employee relocations must be approved by the contracting officer before the costs are incurred, or it may state that such costs are allowable only up to a specific amount for each employee or a specific total amount.

Some contracts, particularly those involving cost-sharing arrangements, may contain indirect rate ceilings that are incorporated into the contract. Indirect rate ceilings may also be incorporated into contracts when the contractor is a new supplier and there is no past record of incurred indirect costs. In addition, an indirect rate ceiling may be incorporated into a contract when the contractor has a recent record of rapidly increasing indirect cost rates. The government may want to incorporate indirect rate ceilings when a contractor seeks to enhance its competitive position in a particular pricing decision by basing its proposal on indirect cost rates that are lower than those that may reasonably be expected to occur during contract performance. Of course, two parties are required for a contract and the contractor may not agree to such rate ceilings.

SELECTED COSTS

FAR 31.205, "Selected Costs," provides substantial guidance on the allowability of 49 major classifications of costs. Some of the costs

discussed in the regulations are unallowable, some are partially unallowable, and some are fully allowable. A very careful reading of the FARs is required to determine which costs are unallowable.

Examples of costs that are considered to be totally unallowable are:

- alcoholic beverages,
- bad debts,
- contingencies,
- contributions or donations,
- entertainment,
- fines and penalties,
- interest and other financial costs,
- losses on other contracts,
- organization costs,
- goodwill,
- executive lobbying, and
- asset valuations resulting from business combinations.

Examples of costs that may be partially unallowable are:

- public relations and advertising,
- compensation for personal services,
- contingencies,
- employee morale, health, and welfare,

- idle facilities and idle capacity,
- independent research and development,
- bid and proposal expenses,
- legislative lobbying,
- patent costs,
- professional and consultant services,
- recruitment costs,
- relocation costs,
- rental costs,
- selling costs,
- taxes, and
- travel costs.

To demonstrate the careful reading of the FARs that is required for determining the allowability of cost, let us examine the first FAR provision for selected cost, FAR 31.205-1, "Public Relations and Advertising." Each of these major costs are defined and it is then specified that particular items are allowable or unallowable. Public relations means all functions and activities dedicated to maintaining, protecting, and enhancing the image of a concern or its products or maintaining or promoting reciprocal understanding and favorable relations with the public at large, or any segment of the public. Advertising means the use of media to promote the sale of products or services. Advertising media include but are not limited to conventions, exhibits, free goods, samples, magazines, newspapers, trade papers, radio, and television. The only allowable advertising costs are those that are specifically required by contract, for recruiting personnel required for the contract,

acquiring scarce items for contract performance, or disposing of scrap or surplus materials acquired for contract performance, or costs for activities to promote sales of products normally sold to the U.S. Government, including trade shows, which contain a significant effort to promote exports from the United States. However, such costs do not include the costs of sales promotion or memorabilia items, such as models, souvenirs, and gifts. Sales promotion costs are unallowable. Physical facilities that are primarily used for entertainment rather than for product promotion are also unallowable. The only allowable public relations costs are those specifically required by the contract; costs of responding to inquiries on company policies and activities; communicating with the public, press, stockholders, creditors, and customers; conducting general liaison with news media and government public relations officers; costs of participation in community service activities, such as blood drives, savings bond drives, charity drives, etc.; and the cost of plant tours, keel layings, and aircraft rollouts. Unallowable public relations and advertising expenses include all those other than the ones specified whose primary purpose is to promote the sale of products or services by stimulating interest in products. Both the contractor and the government must have personnel working in the indirect cost area who are very familiar with these regulations.

While the guidance provided in the FARs is substantial, the discussed "selected costs" do not cover every situation. The failure to address any item of cost in the FAR is not intended to imply that it is either allowable or unallowable.

ADVANCE AGREEMENTS

Since the allowability of costs may be subject to various interpretations, FAR 31.109 recommends that certain controversial costs be made the subject of an advance agreement between

the contractor and the government. Advance agreements are strongly recommended for companies that do a substantial amount of business with the government on the basis of negotiation. Advance agreements may be negotiated either before or during a contract but should be negotiated before incurrence of the cost involved. The agreements must be in writing, executed by both contracting parties, and incorporated into applicable current and future contracts.

Examples of costs for which there may be differing interpretations relating to reasonableness and for which advance agreements may be especially beneficial are:

- precontract costs (costs incurred before the effective date of a contract that may be necessary for meeting the delivery schedule);
- compensation for personal services, including but not limited to allowances for off-site pay, incentive pay, location allowances, and cost of living differential;
- use charges for fully depreciated assets;
- independent research and development expenses;
- bid and proposal expenses;
- selling and distribution expenses;
- travel and relocation costs;
- costs of idle facilities and idle capacity;
- plant reconversion;
- G&A expenses in some cases, e.g., corporations with foreign subsidiaries or government-owned and contractor-operated plants (GOCOs);

CERTIFICATE OF FINAL INDIRECT COSTS

This is to certify that I have reviewed this proposal to establish final indirect cost rates and to the best of my knowledge and belief:

1. All costs included in this proposal (identify proposal and date) to establish final indirect cost rates for (identify period covered by rate) are allowable in accordance with the cost principles of the Federal Acquisition Regulation (FAR) and its supplements applicable to the contracts to which the final indirect cost rates will apply; and
2. This proposal does not include any costs which are expressly unallowable under applicable cost principles of the FAR or its supplements.

Firm:

Signature:

Name of Corporate Official:

Title:

Date of Execution:

Exhibit 13. Certificate of Final Indirect Costs

- public relations and advertising expenses; and
- training and education expenses.

Advance agreements help avoid controversies and disagreements in the treatment of costs that arise. But an advance agreement is not an absolute requirement and the absence of an advance agreement on any cost should not effect the reasonableness of the cost.

CERTIFICATION OF INDIRECT COSTS

Contractors are required to submit their final indirect cost claim for each fiscal year to the government within 90 days after the end of the year. Contractors have the responsibility to maintain adequate controls for identifying unallowable costs and ensuring that such costs are not included in proposals, billings, or indirect

cost claims submitted to the government. DoD now requires contractors to certify their final indirect cost claim with the execution of a "Certification of Indirect Costs" (Exhibit 13). Industry personnel often call this the "Weinberger Certificate"; it states that no unallowable costs are included in the submission for reimbursement of actual indirect costs. FAR 42.709 requires that penalties be assessed if a contractor claims a cost in an indirect cost proposal that is unallowable. The penalty provision applies only to "expressly unallowable costs"—a term that includes only those costs specifically unallowable under a law, contract, or FAR/DFARS cost principle. Penalties are severe and can be as much as twice the amount of the unallowable cost.

UNUSUAL INDIRECT COST REQUIREMENTS

Three major types of indirect costs historically have been very controversial and are accounted

for in a very unique way in the government contracting environment. These are the costs for independent research and development (IR&D), bid and proposal expenses (B&P), and cost of money for facilities capital. IR&D and B&P are unique because of their required method of accounting, first on a direct project-oriented basis as if they were direct costs and then as indirect costs. Also, it should be noted that within the past few years, there have been significant congressionally directed changes in the allowability of IR&D and B&P costs. The cost of money for facilities capital is an unusual indirect cost that does not exist in the commercial marketplace. It represents an "imputed" cost that is an amount paid to the contractor for a cost that he does not actually incur.

Independent Research And Development/ Bid And Proposal Expenses

All companies producing high-technology products must make large investments of corporate funds in research and development work in order to remain competitive. Large investments must also be made in proposing new products or services to customers. This is true of companies vying for the commercial market as well as of defense contractors. The nature of this work varies from conducting basic research on new materials to developing improvements in stealth technology, and from attendance at presolicitation conferences to the development of test data to prepare cost estimates for a proposal. These efforts represent IR&D and B&P, terms unique to government contracting. They are defined as follows:

- IR&D consists of contractor research and development efforts not performed under contract or grant and not required for the preparation of a specific bid or proposal, either government or commercial. IR&D is funded and managed at the contractor's discretion from contractor-controlled resources. There are four

kinds of IR&D: basic research, applied research, development, and systems concept formulation studies.

- B&P comprises contractor efforts related to preparing, submitting, and supporting bids and proposals, either government or commercial, whether or not the bid is successful. Both administrative and technical efforts are included in B&P. The nature of the work in IR&D and B&P is sometimes the same. The difference is in the intent to use B&P efforts to obtain a specific contract.

DoD policy recognizes IR&D/B&P as a cost that increases the technology base and the number of contractors able to compete for DoD contracts. Although DoD provides financial support for IR&D/B&P efforts, DoD has historically established limitations on the amount of cost that can be recovered by defense contractors. However, within the past few years, many defense contractors have scaled back their IR&D/B&P discretionary spending plans. This action has been driven by reduced sales in a declining market. Because of concerns that IR&D projects would be further reduced as defense reductions continue, Congress directed several significant changes to IR&D/B&P policy. The changes have been very favorable to the defense industry. In the past few years, several legislative revisions were made with the objective of encouraging defense contractors to increase their IR&D/B&P efforts. Initially, Congress broadened the acceptable criteria for allowable IR&D projects to include any work of "potential interest" to DoD as opposed to the then-existing, more restrictive, "potential military relevancy" criteria. Later, Congress directed the removal of all requirements for negotiated ceilings on allowable IR&D and B&P expenses. The very significant changes in allowability of IR&D/B&P expenses were made effective for contractor fiscal years beginning after October 1992. In order to under-

stand the current allowability provisions, we must first understand the prior provisions since there was a three-year phase-in period for transition to the new provisions. In addition, the prior regulatory provisions will remain operative for several years because final indirect rates are often not negotiated until several years after the costs are incurred. We will cover the negotiation of final indirect rates in more detail in Chapter 8.

Historically, there were two types of cost limitations established in the FAR based upon the amount of IR&D/B&P payments made to contractors by DoD. A company that received more than \$7 million from DoD for both IR&D and B&P in the previous fiscal year was required to negotiate an advance agreement establishing a ceiling for allowability of IR&D/B&P for the subsequent fiscal year. Companies falling below the threshold were limited in the following fiscal year to a ceiling set with a detailed formula specified in the FAR, which was based on historical expenditures for that company. Companies requiring negotiated advance agreements were required to submit comprehensive annual proposals supported by both technical and financial data. A government review team, which was led by the predominant military service doing business with the contractor, conducted on-site technical evaluations of the contractor's proposed projects. The purpose of the review was to evaluate the projects for technical merit and to determine if the projects were of potential interest to DoD. The criteria for projects that meet the potential interest test include those that: (1) strengthen the U.S. defense industrial and technology base; (2) enhance industrial competitiveness; (3) promote the development of various critical technologies, including those useful to private, commercial, and public sectors; and (4) develop technologies achieving environmental benefits. The technical evaluation was provided to a tri-service negotiator responsible for IR&D/B&P negotiation

with that contractor. The tri-service negotiator used the results of the technical evaluation along with financial data to develop a DoD negotiation position. The financial data typically reviewed included; three to four years of IR&D/B&P expenses, contract mix, and relationship of DoD to commercial sales. Contractors with high technical quality and proposed projects having potential military interest were given higher ceilings. Also, contractors who had actually spent in excess of previously negotiated ceilings tended to be given higher ceilings. From an industry perspective, large defense contractors for several years have complained that the process for establishing the ceilings was excessively burdensome and expensive. As a result of the significant congressionally directed changes, no new ceilings were negotiated for contractor fiscal years beginning after October 1992. Also, the formula approach set forth in the FAR for establishing ceilings for those other than the major companies was eliminated. A maximum reimbursement amount for IR&D and B&P expenses for "major contractors" was phased in over three years.

Major contractors are defined as those whose business segments allocated more than \$10 million in IR&D/B&P expenses to covered contracts in the preceding fiscal year. Covered contracts are defined as negotiated prime or subcontracts for more than \$100,000, except for fixed-price contracts or subcontracts without cost incentives. For major contractors, during the three-year transition period, the maximum reimbursement amount was progressively increased each year from the negotiated 1992 advance agreement. Each year, the maximum reimbursable amount was the amount of allowable IR&D/B&P costs from the previous fiscal year, plus 5% of that amount, plus that amount multiplied by the lesser of: (1) the percentage increase in total IR&D/B&P from the prior year, or (2) the percentage rate of inflation as measured by the research, development, test, and

evaluation (RDT&E) price escalation index. After the three transition years, all IR&D/B&P expenses are to be allowable as an indirect expense to the extent that they are allocable and reasonable. Recall that allocable and reasonable are the more general requirements for allowability for any cost. While there will still be technical content reviews of contractors' proposed IR&D/B&P programs by the Defense Contract Management Command personnel, the more penetrating tri-service reviews and ceiling negotiations have been eliminated.

The accounting requirements for IR&D/B&P expenses for government contracts are very unusual relative to commercial accounting practices. In the commercial contracting environment, IR&D/ B&P expenses are usually written off as period expenses each year. No efforts are made to allocate these costs to specific products or contracts. In the defense contracting environment, IR&D/ B&P expenses relate to distinct work projects and include not only all direct costs related to each project, such as materials, labor, and travel, but also all allocable indirect costs, such as material, engineering, and manufacturing overhead. But it is important to note that general and administrative expenses are not considered to be allocable to IR&D/B&P projects. So with the exception of the absence of an appropriate allocation of G&A, IR&D/B&P expenses are determined on the same basis as if each project was under contract. Usually, IR&D/B&P expenses are accumulated in the G&A expense pool. But some contractors choose not to include the expenses in G&A and prefer to have a separate IR&D/ B&P indirect rate. In either case, CAS 420, "Accounting for IR&D/B&P Costs," provides that IR&D/B&P expenses should be allocated on the same base that the contractor uses for allocating G&A expenses. Some flexibility is provided as an exception under CAS 420. Specifically, in those instances when allocation of the cost through the G&A base does not pro-

vide for an equitable cost allocation, such as when an IR&D/B&P project may benefit other business segments, the contracting officer may approve the use of a special allocation.

Cost Of Money

The cost of money for facilities capital employed is a very unusual cost that is frequently misinterpreted by acquisition personnel. It is not an interest expense. Recall that, under the Federal Acquisition Regulations, interest is an unallowable expense and cannot be charged directly or indirectly to government contracts. Also, the cost of money is not an actual expense incurred by the contractor for which there is a cash payment. Yet, under government acquisition regulations, the cost of money for facilities capital is an allowable indirect cost that is relevant for pricing government contracts. This cost is also called out as a separate line item on monthly Government Cost Performance Reports (CPRs) prepared by contractors and submitted to program offices.

In order to understand the logic of why there is a cost of money for facilities capital, one needs to first have an appreciation for the contractor's perspective on investing in capital equipment in the defense business. DoD policy has long been to encourage its contractors to invest in cost-reducing facilities and equipment, thus enabling the procurement of weapons systems at the lowest possible price. However, given that interest is an unallowable cost, no strong incentive existed for contractors to invest in capital equipment. Such investments typically require very large outlays of cash by contractors. If a contractor borrows money to purchase facilities, he is required to pay unallowable interest on the borrowed funds. But if he uses his own money to purchase capital facilities and equipment, there is also an opportunity cost: It could have been used for other purposes, such as investing it in a relatively risk-free govern-

ment bond. The cost of money for facilities employed represents a creative way devised by the government to reward contractors for investing in more efficient ways of producing defense products.

The cost of money for facilities capital is best described as an "imputed cost" that is determined by applying a cost of money rate to the facilities capital employed in contract performance. An imputed cost is a cost that can be attributed to something else, in this case to a contractor's investment in facilities and equipment. The investment base is the average net book value of capital assets for a cost accounting period, usually the contractor's fiscal year. The base includes items subject to depreciation or amortization and also to such items as land that is not subject to depreciation. It also includes capitalized leases and an allocation of corporate home office facilities to the business segment. However, the base does not include investments in operating or working capital, such as inventories, accounts receivable, and other current assets. It is important to note that the investment is determined without regard to whether its source of financing is borrowed or equity capital. This financing decision is entirely made at the discretion of the contractor.

The asset values in the investment base are allocated to indirect cost pools, such as engineering overhead, manufacturing overhead, and the general and administrative expense pool. The allocation is made on any reasonable basis that approximates the absorption of depreciation or amortization expense related to the assets. The cost of money is then computed on the facilities capital in each indirect cost pool by multiplying the net book value of the assets assigned to each pool by the treasury rate. The treasury rate is a commonly used interest rate that is determined by the Secretary of the Treasury and published in the Federal Register semiannually. It takes into consideration current commercial

rates of interest for new loans maturing in approximately 5 years. As an example of a cost of money computation, if the current treasury rate is 7 percent and the average net book value of the assets assigned to a contractor's manufacturing overhead pool is \$100 million, the cost of money attributed to manufacturing facilities would be \$7 million for a one-year period. Cost of money factors are computed for the assets attributable to each of the overhead pools by dividing the amount of the cost of money by the same unit of measurement used as the overhead allocation base, such as direct labor dollars, machine hours, etc. Continuing with our example, a manufacturing overhead pool with a computed cost of money of \$7 million allocated by direct labor dollars of \$51 million would have a cost of money factor of .13725 (i.e., \$7 million/\$51 million). Cost of money computations are required to be taken to five decimal places. The overhead allocation base (direct labor dollars in this case) used to distribute an indirect expense pool refers to all work done in the business unit, including commercial work. Annual cost of money factors are proposed and negotiated with the government for forward pricing purposes in the same method as overhead and G&A rates. We will discuss forward pricing rates in more detail in Chapter 8.

Cost of money is subject to the same allocation procedures as any other indirect expense. To distribute the manufacturing pool cost of money to a specific contract, the manufacturing labor identified with the contract is multiplied by the applicable cost of money factor. For example, if the manufacturing direct labor proposed on given contract was \$5 million and the manufacturing cost of money factor is .13725, the cost of money applicable to the contract for the manufacturing effort would be \$686,250. This procedure is repeated for each indirect cost pool. Consequently, some people refer to the cost of money for facilities capital as a "mini-overhead

pool.” Stated differently, the cost of money is considered to be an allowable indirect expense that is associated with an individual cost pool but separately identified as cost of money. On a given proposal, the cost of money amounts for each indirect cost pool are then totaled to arrive at the total contract facilities capital cost of money, and this must be specifically identified as such in the proposal. Some contractors, to improve their competitive position, may not claim the cost of money. Therefore, government regulations require that if a contractor does not propose cost of money in his proposal, it cannot be subsequently claimed as an allowable cost should he win the contract.

CURRENT ISSUES

Congressional involvement in defense procurement matters (the result to a significant extent of large employee layoffs resulting from defense industry consolidation activities) seems to have a continuous major impact upon indirect costs. Recent examples of congressional actions that have been somewhat controversial have been the limitations relating to the allowability of restructuring costs, allowability of executive compensation, and the phaseout of “M” accounts.

Restructuring Costs

The merger and acquisition whirlwind that has occurred within the past few years in the defense industry has generated many new and controversial issues affecting the allowability of indirect costs. Historically, the government has always taken a very strong unfavorable position relating to mergers and acquisitions by disallowing the costs of activities related to the organization or reorganization of business units. Essentially, the government’s past position has been that organizational or reorganizational costs are disallowed because the government expects to do business with firms that are al-

ready efficiently organized; therefore, there should be no requirement for the payment of these costs. FAR 31.205-27, “Organization Costs,” identifies certain categories of organizational costs that are unallowable—and defines them as those expenditures having to do with (1) the planning or execution of the organization or reorganization of the corporate structure of a business, including mergers and acquisitions, (2) resisting or planning to resist the reorganization of the corporate structure of a business or a change in the controlling interest in the ownership of a business, and (3) raising capital. Typically, these expenditures include, but are not limited to, the significant costs for investment counselors, management consultants, attorneys, accountants, and brokers. These specialists are required because business organization and reorganization activities are usually very complex and highly dissimilar in nature. Many of the activities are performed by in-house business planning personnel, corporate legal staff, and accounting personnel as well by outside professionals. In-house personnel are usually working in an indirect capacity and generally do not keep project time records. Consequently, from the government’s perspective, the identification and allowability of organization costs have always been areas of concern.

The adequacy of the regulatory provisions relating to organization costs have been severely tested in the current defense environment. The term “restructuring costs” was uncommon in the defense industry a few years ago. It is ubiquitous today. In the current environment of increased competition due to the declining defense budget, many contractors are aggressively restructuring and consolidating their operations to become more efficient and competitive. This may mean closing plants, eliminating jobs, relocating employees, moving machinery and equipment, and disposing of facilities. In some cases, consolidation activities may coincide with mergers and acquisitions. But many de-

defense contractors have to consolidate and downsize whether or not they are involved in mergers and acquisitions. These activities often result in significant expenses for severance pay and early retirement incentives, pension plan changes, health benefit changes, and employee training. Such costs are usually always indirect and thus can have a major financial impact on indirect rates used for government contracting purposes. Since restructuring costs may provide a future economic benefit, they may be amortized over more than one year. Consequently, indirect cost rates can be affected for several years. In the long run, restructuring and consolidation activities such as the consolidation of engineering, manufacturing, and materiel operations should provide substantial savings to DoD. The savings to DoD will be reflected in lower indirect rates, which will be applied to DoD contracts translating into lower contract prices. Of course, the DoD share of restructuring savings will vary based on the total dollar value of future DoD contracts in relation to the total dollar value of all other contracts, including commercial contracts.

We have stated that the government has tended to question the allowability of costs related in any way to business reorganization. However, according to guidance published by the Under Secretary of Defense (Acquisition and Technology), it is now in DoD's best interest to encourage contractors to consolidate and restructure in order to reduce operating costs. To disallow the costs for restructuring and consolidating efforts would in effect be creating a disincentive for reducing costs. Therefore, a differentiation has now been made between the type of costs identified in FAR 31.205-27 as organization costs relating to mergers and acquisitions and restructuring costs that result from mergers and acquisitions. Although merger and acquisition costs are unallowable, restructuring costs may very well be allowed. Note that restructuring costs do not include the

costs incurred to make an acquisition or merger. Restructuring efforts, which are nonrecurring in nature, represent managerial improvement projects undertaken due to internal changes such as downsizing or external changes such as mergers, acquisitions, or divestitures. Such restructuring efforts are expected to result in a current or future economic benefit for both the contractor and the government and are not considered to be organization costs within the meaning of FAR 31.205-27.

Unfortunately for defense contractors, there has been a continuing debate within the government as to how DoD should reimburse restructuring costs. The decision-making process for determining the allowability of restructuring costs has become increasingly complicated, with congressional involvement in establishing allowability requirements. Many thought at one point that Congress was going to totally preclude contractors from recovering any of their restructuring costs. It seems that many in the political arena viewed the reimbursement of restructuring costs as referred to in the media as "payoffs for layoffs" and "subsidies for defense contractors." Congress has continually, through provisions in annual authorization or appropriation provisions over the past few years, introduced certain conditions that make it more and more difficult for defense contractors to recover costs that could in any way be associated with mergers and acquisitions. Initially, Congress allowed DoD to reimburse contractors for restructuring costs associated with business combinations when such costs resulted in a net savings to DoD. However, the Under Secretary of Defense (Acquisition & Technology) or his designee was required to certify that projections of future savings were based on audited cost data and were projected to result in overall savings for DoD. Most recently, Congress has specified that certain funds cannot be used to reimburse defense contractors for external restructuring costs associated with a busi-

ness combination unless the merger results in auditable DoD savings that exceed the costs allowed by at least a two-to-one ratio, or results in savings that exceed the costs allowed and also preserve a critical capability that might be lost to DoD, as certified to by the Secretary of Defense. As a result of the restrictions, DoD provided guidance to personnel working in the field regarding the allowability of restructuring cost by further breaking the costs down between external and internal restructuring costs. Specifically, DFARS 231.205-70 defines restructuring costs as the costs (which may be both direct and indirect) of restructuring activities. Restructuring activities are defined as nonroutine, nonrecurring, or extraordinary activities to combine facilities, operations, or workforce, in order to eliminate redundant capabilities, improve future operations, and reduce overall costs. External restructuring activities are further defined to mean activities occurring after a business combination that affect the operations of companies not previously under common control. External restructuring activities are a direct outgrowth of a business combination and normally are initiated within three years after that combination—defined as a transaction where assets of two or more companies not previously under common control are combined, whether by merger, acquisition, or sale and purchase. Note that the congressional restrictions apply only to external restructuring activities.

Restructuring costs that may be allowed include (but are not limited to): severance pay; early retirement incentive payments; retraining costs; relocation expenses; outplacement expenses; continued medical, dental, and life insurance coverage for terminated employees; and relocation of plant and equipment. Restructuring savings should exceed restructuring costs on a present value basis in order to meet the congressionally mandated certification for reimbursement of external restructuring costs. This

is important from a financial perspective because contractors may incur significant up-front restructuring costs for transfer of production capabilities, employee severance, etc. But most savings do not materialize until several years later when they are passed on to the government through lower prices on future contracts.

The congressional sensitivity to reimbursement of restructuring costs seems to be of a fault-finding nature. It is very clear that Congress is strongly opposed to the payment of bonuses related to mergers and acquisitions in the defense industry. Specifically, DoD is prohibited from reimbursing a contractor for the costs of bonuses or other payments to an employee in excess of the employee's normal salary when such payments are part of restructuring costs associated with a business combination. Further, Congress has recently directed the Government Accounting Office, in coordination with the Secretary of Defense, DoD Inspector General, and Secretary of Labor, to conduct an analysis of restructuring costs paid by DoD to companies involved in business combinations, the resulting savings to DoD from the mergers relative to the restructuring costs, services provided to workers affected by the business combination, and the effectiveness of the restructuring costs used to help laid-off workers find employment. Congress has also recently directed the Secretary of Defense to conduct a study on the effect of mergers and acquisitions on the defense industry. The purpose of the study is to address the effectiveness of mergers in eliminating excess capacity, the degree of change in contractor's dependence on defense-related contracts, the effect on employment, and the effect on competition.

From an industry perspective, in order to deal with the controversial issues relating to the allowability of restructuring costs, defense contractors must establish strong management controls for documenting these costs. Contractors

should accumulate these costs in separate categories of internal and external restructuring activities. A memorandum of understanding should be negotiated between the government and the contractor to identify the restructuring costs and the methods to be used to demonstrate savings to DOD. Due care should be exercised in preparing a detailed restructuring cost and savings proposal, which provides a basis for negotiating an advance agreement on restructuring costs. The advance agreement should cover any cost ceilings and amortization periods for restructuring projects. It should be noted that in accordance with CASB Interpretation 95-01, restructuring costs may be amortized over not more than five years. Restructuring proposals are not contract pricing proposals and therefore need not be certified in accordance with the Truth in Negotiation Act. However, the effect of restructuring on forward pricing rates and projected contract costs should be disclosed immediately. It is essential in the current environment that DCMC, DCAA, program offices, and contractors make special efforts to ensure up-front communication and coordination for all matters relating to the allowability of restructuring costs.

Allowability Cap on Executive Compensation

The merger, consolidation, restructuring, and downsizing activities discussed above have in some cases resulted in significant layoffs or salary freezes for defense contractor employees. At the same time, some executives in the defense industry have received large payouts as a result of the consolidation activities. Many in the political arena consider this to be very unfair. As a result, Congress has recently become involved in legislating the maximum deductible amounts for tax purposes for American industry in general as well as the maximum allowable amounts paid for executive compensation for defense industry executives. The

Defense Authorization and Appropriation Bills for fiscal year 1997 provide that allowable costs charged to government contracts for taxable wages paid to the employee for the year, plus elective deferred compensation earned by the employee in the year, cannot exceed \$250,000 per year. Further, the implementing FARs and DFARS provides that costs for individual compensation in excess of the allowability cap are expressly unallowable. This means that any costs claimed by a contractor in excess of the allowability cap will also be subject to the indirect cost penalty provisions as discussed earlier in this chapter. The allowability cap does not prohibit contractors from paying their executives more than \$250,000 per year, but it limits the amount that can be allocated to government contracts. It should be emphasized that executive compensation is not just taxable wages and elective deferred compensation. It also includes bonuses, sales commissions, and other compensation.

The unallowable amounts over the limitations would most likely be classified as indirect costs because higher paid executives are usually working in an indirect rather than a direct capacity. A key issue from an indirect cost allocation perspective is that the limitation is the dollar amount that can be placed into an indirect cost pool for allocation to all contracts, including any commercial contracts. It is not the total amount that the contractor can recover from the government for indirect costs allocable to negotiated contracts.

Initially, many in the acquisition community thought that the allowability cap would be temporary in nature. But it appears that it could very well become permanent. For example, the fiscal year 1997 authorization and appropriations bills extend the limitation to all federal contracts. In addition, the Office of Federal Procurement Policy (OFPP) was directed to complete a study and make recommendations con-

cerning a permanent standard for executive compensation. Needless to say, the recent congressional actions have been very controversial with the defense industry.

Expiration Of Funds

Recent changes in government financial management rules could potentially require program managers to scale back current requirements in order to pay past bills for indirect costs. Recent congressionally mandated actions require the phaseout over a period of several years of the "M accounts," which covered obligated but unexpended funds. Both obligated and unobligated balances are now canceled five years after the budget authority expires regardless of whether the goods or services contracted for have been provided. Thereafter, any obligations and related upward adjustments that would have been chargeable to the canceled M account may only be paid out of current appropriations. All DoD procurement funds not expended within

five years after being appropriated now must be returned to the Treasury. This legislation has tremendous impact upon the management of indirect costs. Use of appropriated funds to make final payments on completed contracts cannot take place until indirect cost audits are completed by the Defense Contract Audit Agency (DCAA) and final indirect cost rates are negotiated by the Defense Contract Management Command (DCMC). Unfortunately, for many years this area has had a very low priority and a large backlog of unsettled indirect cost rates exists. It is not at all unusual for a contractor to have five years or more of unsettled, final indirect cost rates. Reducing the number of contractor fiscal year final rate negotiations is a top management priority for both DCMC and DCAA and considerable progress is being made. From the program manager's perspective, delays in settling final indirect rates in a timely manner could result in the loss of obligated but unexpended funds.

7

COST ACCOUNTING STANDARDS REQUIREMENTS

INTRODUCTION

In American industry in general very little authoritative criteria have been issued for establishing requirements for cost accounting, particularly relating to the basis for allocating indirect cost to specific products or contracts. The methodologies used to allocate indirect costs are essentially matters of managerial preference. This absence of authoritative criteria is not the case with government contracts. In order to have an understanding of indirect cost management in the defense contracting environment, it is necessary to be familiar with the work of the Cost Accounting Standards Board. Their work has resulted in detailed guidance on accounting for indirect costs, particularly on defining acceptable methods for allocating these costs. Although the defense industry has always been represented on the CASB, many defense contractors have legally challenged many of the standards' provisions. This complicated litigation history adds to the challenges that face personnel who do not have extensive cost accounting backgrounds. Many acquisition personnel consider the Cost Accounting Standards to be among the most complicated of government regulations.

It is interesting to note that the necessity for cost accounting standards originated with congressional testimony by a military officer and nuclear engineer, Adm. Hyman Rickover. He maintained that because of the lack of guidance on cost accounting practices in American industry, the government was unable to determine what actual costs and profits were on defense contracts even though cost breakdowns were

extensively negotiated prior to contract award. Subsequent studies of defense contracts spurred by Admiral Rickover's testimony indicated that comparing actual costs of contract performance with earlier contract cost estimates was practically impossible. Of particular importance from a program management standpoint, it was alleged that not only were contract performance reports not structured in the same fashion as original cost proposals, but contractors were changing their cost accounting methods during the performance of contracts. The ability to identify possible contract cost overrun problems, particularly regarding overhead costs, was very troublesome for acquisition managers under these circumstances. As a result of problems identified subsequent to Admiral Rickover's testimony, the CASB was established in 1970 as an independent body reporting to Congress. It was created to help assure the government of a fair price in its procurement and to issue rules, regulations, and standards aimed at achieving uniformity and consistency in the cost accounting practices that were followed by defense contractors and subcontractors.

The CASB then became an executive authority for issuing pronouncements relating to the measurement, assignment, and allocation of costs. The purpose of regulations promulgated by the CASB is to provide for the disclosure of contractor's actual cost accounting practices and to develop standards to be used in connection with negotiated contracts. Cost accounting standards were originally applicable only to defense contracts, but now apply throughout government, to negotiated contracts and sub-

contracts valued at \$500,000 and above. This change extends CAS coverage to many government contractors for the first time. Today, the board is organized under the Office of Federal Procurement Policy (OFPP) and consists of five members representing government, industry, and the accounting profession.

Exhibit 14, "Cost Accounting Standards," identifies the comprehensive standards issued by the CASB and provides a brief summary of each standard's requirements. The promulgations of the CASB have the full force and effect of law on those contractors subject to the standards. The CASs provide guidelines related to the allocability of costs to government contracts and do not provide guidance on those costs' allowability—a totally different concept. Allowability is a procurement concept while allocability is an accounting concept. Guidance on allowability is provided in the FAR and DFARS.

It should be emphasized that cost accounting standards do not apply to contracts awarded based upon market prices of commercial items or when contractors do not need to submit cost data to form the basis for negotiation with the government. The regulations also provide that small business concerns are exempt from the Cost Accounting Standard requirements.

APPLICABILITY

Cost Accounting Standards apply to contracts and not government agencies or contractors. Contracts subject to CASs are negotiated contracts in excess of \$500,000 and are referred to as "covered contracts." Subcontracts are subject to the cost accounting standards only if the prime contract, or a higher tier subcontract, is a covered contract. A CAS-covered contract may be subject to either full or modified CAS coverage. Full CAS coverage, which requires that

the contractor comply with all of the cost accounting standards in effect on the date of award of the contract, applies to a business unit that received either (1) a single CAS-covered contract of \$25M or more, or (2) a net total of \$25M in CAS-covered awards during the previous cost accounting period of which at least one exceeded \$1M.

A CAS-covered contract is eligible for modified CAS coverage if neither of the above criteria are met. A modified CAS contract is subject only to CAS 401, "Consistency in Estimating, Accumulating, and Reporting Costs"; CAS 402, "Consistency in Allocating Cost Incurred for the Same Purpose"; CAS 405, "Accounting for Unallowable Costs"; and CAS 406, "Cost Accounting Period."

DISCLOSURE STATEMENT

The CAS Disclosure Statement, which applies to contractors and not to contracts, provides a comprehensive description of the contractor's cost accounting practices to be used on contracts subject to the CASB rules. Contractors and subcontractors meeting the below criteria are required, as a condition of contracting, to provide written disclosure of their actual or proposed cost accounting practices. Those required to submit a disclosure statement are: (1) any business unit that is selected to receive a CAS-covered contract or subcontract of \$25M or more, and (2) any company that, together with its segments, received net awards of negotiated prime contracts and subcontracts subject to CASs totaling more than \$25M in its most recent cost accounting period, of which at least one contract totals more than \$1M. When a disclosure statement is required, a separate disclosure statement must be submitted for each segment whose costs included in the total price of any CAS-covered contract or subcontract exceed \$500,000.

Among other things, the disclosure statement provides essential information on the contractor's indirect cost pool structure, including a functional breakdown of indirect expenses and the various bases used for allocating indirect costs. In addition, the contractor must disclose its method of distinguishing direct from indirect costs. The disclosure statement provides acquisition personnel with a valuable tool to help them understand the company-specific cost accounting practices the contractor follows. Government acquisition personnel must treat contractor's disclosure statements as highly confidential information. The statements cannot be released to the public, as a competitive disadvantage could result from any such disclosure.

Contractors are required to certify on each contract pricing proposal cover sheet whether or not a disclosure statement has been submitted. The lack of a disclosure statement can prevent a contractor from receiving a contract award. Separate disclosure statements are required for each business unit within the contractor organization that uses different cost accounting practices.

COST ACCOUNTING STANDARDS RELATING TO INDIRECT COSTS

Eight of the Cost Accounting Standards are especially important for the understanding of indirect costs. Each of these is described in more detail below:

CAS 401: Consistency in Estimating, Accumulating, and Reporting Costs. This standard requires that a contractor must be consistent in the way it estimates costs to price a proposal and subsequently accumulates and reports those costs—especially the classification of elements or functions of costs as direct or indirect, the indirect cost pools to which each element or function of cost is charged, and the methods of

allocating indirect costs to the contract. Costs estimated for proposal purposes are to be presented in such a manner and in such detail that any significant cost can be compared with the actual cost accumulated and reported. Specific examples are provided in the standard to illustrate applications of cost accounting standards that are determined to be consistent and those that are considered to be inconsistent.

Noncompliance with CAS 401 can occur when a contractor has failed to estimate costs in accordance with established or disclosed cost accounting practices; and can also occur when a contractor estimates in accordance with its disclosed or established cost accounting practices but accumulates on a different basis. Suppose that a contractor estimates the costs for a cost-type contract based on its practice of allocating manufacturing overhead using direct labor dollars. After award of the contract, the manufacturing overhead allocation base is changed to machine hours without notifying the government of the change and without submitting a disclosure statement revision. Further, assume that this change resulted in a significant cost overrun on the cost-type contract as costs were shifted from fixed-price contracts to cost contracts. This inconsistency would represent a noncompliance with CAS 401, because the contractor did not accumulate costs on the same basis as the estimates were made. In this case, a noncompliance with the CASs occurred because the contractor did not notify the government of the change and submit the required disclosure statement revision. Contractors are allowed to change accounting practices, provided that the required notifications and submissions are made.

Compliance with CAS 401 requirements improves the managerial visibility over costs during contract performance and facilitates the evaluation of a contractor's estimating capabilities. Note that CAS 401 does allow a contrac-

tor to use greater detail in accumulating and reporting costs than in estimating costs. For example, a contractor may record engineering indirect labor based on actual costs for each individual, but estimate on the basis of an average indirect labor rate for such labor.

CAS 402: Consistency in Allocating Cost Incurred for the Same Purpose. CAS 402 is intended to prevent so-called “double counting” of costs. Double counting occurs when cost items are charged directly to a contract without eliminating like cost items from indirect cost pools that are also allocated in some part to that contract. Thus a contract might be charged directly with a specific direct cost but get an additional share of the same kind of cost incurred for other purposes through an indirect cost allocation. Consequently, the standard requires that all costs incurred for the same purpose in like circumstances be treated either as direct costs only or as indirect costs only in making allocations to contracts. As an example, suppose a contractor normally allocates all travel costs as indirect cost and previously disclosed this practice in his disclosure statement. For purposes of a new proposal, the contractor intends to charge the travel costs of personnel whose time is charged as direct labor directly to the contract. Since travel costs of personnel whose time is accounted for as direct labor working on other contracts are costs which are incurred for the same purpose, these costs may no longer be included within indirect cost pools for purpose of allocation to any covered government contract.

The government is quite concerned with the strong motivation on the part of contractors to charge the maximum amount of costs direct to cost-type contracts. This could occur when a particular cost is charged direct to government cost-type contracts and charged indirect when related to government fixed-price or commer-

cial contracts. As an example, assume that the costs of program management for a government cost-type contract are charged direct to the contract. Further, assume that these same types of costs for fixed-price and commercial contracts are included in overhead costs and allocated to all final cost objectives including the government cost-type contract. As a result, the government cost-type contract is allocated all program management costs associated with that contract and a share of the program management costs of all other contracts. Such inconsistencies result in double counting, with excessive charges to the government.

On the other side of the coin and from the contractor's perspective, government personnel should not request preferential treatment by asking the contractor to absorb certain costs as indirect that should be charged as direct in accordance with the contractor's accounting practices. For example, assume that a government cost-type contract requires special security personnel due to the classified nature of the work. Government personnel should not ask the contractor to include these people in his normal plant security force in order to charge the cost as indirect. In this case, fixed-price and commercial contracts would receive an allocation of the contract security costs while they received no benefit from the incurrence of the costs. The important test is a determination as to whether the costs were incurred “for the same purpose” and “in like circumstances.” In this case, security personnel required for a specific contract are not like costs, in like circumstances with general purpose plant security costs. Government personnel should also be very cautious about requesting “preferential” program overhead rates that could destroy the total perspective of fair and equitable distribution of indirect costs. Compliance with such a request could place the contractor in potential violation of CAS 402.

A matter for important note is that bid and proposal costs incurred pursuant to the specific requirement of an existing contract are considered to have been incurred in different circumstances with other bid and proposal costs and may be charged direct to the specific contract. The circumstance is quite different because the costs of preparing proposals specifically required by the provisions of an existing contract relate only to that contract, while other proposals relate to all work of the contractor. Therefore, such costs are not "like-cost" incurred in "like circumstances" and do not constitute double counting. To ensure compliance with this standard, the contractor's disclosure statement should clearly describe the criteria used to distinguish between direct and indirect costs.

CAS 403: Allocation of Home Office Expenses to Segments. This standard establishes criteria for allocating home office-type expenses to business segments based on the "causal or beneficial" relationship between home office expenses and certain business segments. The impact of the standard has been to cause companies to significantly increase the cost that is separately identified and directly allocated from home offices to business segments. The standard stresses the importance of minimizing the amount of "residual expenses" or those expenses remaining at the home office to be allocated as overall management expense. A three-step sequential process is defined for allocating home office expenses:

1. **Direct Allocation.** Expenses are identified for direct allocation to specific business segments to the maximum extent possible. Direct allocation is mandatory, not an option, when a practical identification can be made. For example, government procurement policy costs might be directly identified with the business segment doing business with the government, while manufacturing policy costs might be iden-

tified with business segments engaged in manufacturing.

2. **Indirect Allocation.** Expenses that are not directly allocated should be pooled into logical and homogeneous groups and then allocated using appropriate bases that show the relationship of the expenses to the segments concerned. Examples of such indirect expenses and appropriate allocation bases are:

- personnel administration: number of employees, labor hours, payroll, number of hires;
- data processing services: machine time, number of reports prepared;
- centralized purchasing: number of purchase orders, value of purchases, number of line items;
- centralized warehousing: square footage, value of materials, volume; and
- central telephone service: usage costs, number of instruments.

3. **Residual Expenses.** Home office expenses that remain after all direct and indirect allocations have been made should be allocated based on a total activity base. These expenses generally have no special benefit to any particular segment but are necessary to the overall business operations. Examples of such expenses are the chief executive officer, chief financial officer, board of directors, and any staff who cannot be identified with specific activities of a business segment. When residual expenses exceed a certain amount, the standard requires the use of a three-factor formula for allocation to business segments. This formula is the simple average of the business segment's payroll, operating revenue, and net book value of capital assets and inventories as a proportion of the company's total for these three factors.

It should be noted that CAS 403 does have a provision allowing management flexibility. It specifically permits a special allocation when the government and contractor can agree that an inequitable allocation of residual expenses would result from strict compliance with the standard. For example, situations involving government-owned and contractor-operated plants, foreign subsidiaries, or sales subsidiaries could require special allocations rather than strict use of the three-factor formula. In such situations, certain segments may have operations that are relatively self-sufficient and require only minimal management and administrative support from the corporate or home office. Conversely, a segment may require a special allocation in greater amounts if it is highly dependent upon the home office or corporate staff for management and administrative support.

CAS 404: Capitalization of Tangible Assets.

Contractors must have a written capitalization policy for distinguishing between capital assets and expenses that is reasonable and consistently applied. The standard requires capitalization for those assets that have a service life of at least two years and an acquisition cost of \$5000 or more. Shorter service lives and smaller amounts may be substituted by the contractor. Costs necessary to bring an asset on line, such as installation and initial testing and inspection, if they are material, must also be capitalized. Tangible capital assets constructed by a contractor for its own use must be capitalized at amounts that include all indirect costs properly allocable to such assets, including an allocation of G&A expenses and the cost of money. Leased assets that are considered to be purchases are also subject to the standard.

CAS 406: Cost Accounting Period. This standard provides that the cost accounting period used by a contractor must be either its fiscal year or a fixed annual period other than its fis-

cal year (if agreed to with the government). The idea of a monthly cost accounting period is not appropriate for contract cost accounting purposes. Direct and indirect costs are not incurred evenly during the fiscal year. In practice, it is common to have large variances in amounts each month, particularly with the direct allocation bases, such as direct labor or machine hours. Capital asset decisions regarding the acquisition of fixed assets, such as plant and equipment, are made on a long-term rather than a short-term basis. Consequently, monthly indirect expenses for depreciation of fixed assets are not meaningful. It is possible that a given contract could be fully performed within only a few months of a contractor's fiscal year. In such cases, this standard would prevent either party to the contract from insisting upon monthly overhead rates in order to maximize or minimize their share of indirect cost. The period to determine the total costs allocable to a contract is the entire cost accounting period, which is the contractor's fiscal year. All indirect rates used for estimating, accumulating, and reporting costs must be based on the contractor's fiscal year.

CAS 410: Allocation of Business Unit General and Administrative Expense to Final Cost Objectives.

The standard defines the types of expenses that are considered to be general and administrative expenses and provides acceptable criteria for allocating such expenses to final cost objectives of the business segment. The accounting for general and administrative expenses represents one of the very significant differences between commercial accounting practices and government contract accounting practices. For commercial accounting purposes, such costs are normally treated as expenses related to the total operation of the business and not related to production of a specific item. The expenses are considered to be "period expenses" and not "product costs." Commercial companies typically do not make any efforts to

allocate such period expenses to final cost objectives, such as specific products or contracts. Therefore, in the commercial world, general and administrative expenses are simply deducted as expenses on the business segment income statement to arrive at net profit or loss for the accounting period. From the contractor's perspective, this practice is totally unacceptable for government contracting purposes. The contractor must allocate all costs to contracts in order to ensure that he at least recovers his costs (much less makes a profit) on negotiated contracts. Therefore, for government contracting purposes, general and administrative expenses must be treated as part of contract cost. Cost accounting practices have been developed unique to government contracting to allocate such costs to contracts.

Business unit general and administrative expenses are required to be included in a separate indirect cost pool and are to be allocated only to final cost objects or contracts. G&A is defined for government contracting purposes as an expense incurred for managing and administering the business unit as a whole. It does not include those management expenses whose causal or beneficial relationship can be more directly allocated. Therefore, any management expenses that can be more directly allocated should be removed from the G&A expense pool. Examples of such expenses could be purchasing, subcontract administration, and program management. Purchasing, for example, could be more appropriately allocated based on the number of purchase orders or on the value of materials purchased, instead of being a part of the G&A cost pool.

From an industry perspective, the most controversial issue regarding CAS 410 has been the designation of specific allocation bases. The standard requires the use of a cost input base that best represents the total activity of the business unit. The bases used are total cost input,

value added input, or a single cost element input such as direct labor hours or dollars. The intent of the standard is that all activities that represent the productive activity of the business segment should be included in the allocation base. For example, the costs of intercompany transfers should be included in the allocation base and such transfers should bear G&A. The standard prevents the use of allocation bases other than cost input, such as cost of sales, employee head count, or a broad formula approach such as the three-factor formula used for allocating residual home office expenses. The total cost input base is the most common method used by defense contractors to distribute or allocate general and administrative expenses. Total cost input is the total cost placed into work-in-process during the contractor's fiscal year. Although it is commonly said that total cost input is the preferred method for allocating G&A, the standard does not provide any preference for this method. In fact, a value-added base may be the most appropriate base in some circumstances. A value-added cost input base is total cost input less material and subcontract costs. This base should be used where the inclusion of materials and subcontract cost would significantly distort the allocation of G&A, such as when there is significant use of government-furnished components for which there would be no materials cost to the contractor.

CAS 410 does have some flexibility as a special allocation of G&A is permitted if the government and the contractor can agree in advance that a particular contract receives significantly more or less benefit from G&A expenses than that which would be received with an allocation based on a cost input base.

CAS 418: Allocation of Direct and Indirect Costs. Of all the cost accounting standards issued, CAS 418 is probably the most valuable from the standpoint of providing authoritative

criteria for the management of indirect costs. This standard, which was highly controversial with defense contractors when first issued, requires the consistent classification of direct and indirect costs, establishes criteria for the accumulation of indirect costs into "homogeneous" cost pools, such as operational overhead pools and service centers, and provides guidance relating to the selection of allocation methods based on the "beneficial or causal" relationship between an indirect cost pool and cost objectives.

In order to comply with CAS 418, the contractor must have a written statement of accounting policies and practices for classifying costs as direct or indirect. The contractor's indirect costs must be grouped into logical and homogeneous indirect cost pools. This requirement means that the cost of functions or activities that are to be pooled must have the same or similar beneficial or causal relationship to cost objectives. This concept of homogeneity is achieved if the activities or functions in the pool are the same or similar, if the activities or functions are unlike but the relationship to benefiting cost objectives are the same or similar, or if the final output of goods and services is the same or similar. An example of an indirect cost pool that would be considered to be homogeneous would be when a contractor accumulates all costs relating to the activities of building ownership, maintenance, and utilities into one indirect cost pool, designated as "occupancy cost," for subsequent allocation to all cost objectives. Although the costs of these activities represent unlike costs, each of the activities has the same or similar relationship to all cost objectives that occupy space in the contractor's facility. On the other hand, assume that a contractor includes the indirect costs of machining and assembling activities into a single manufacturing overhead pool. The machining activity may not have the same or similar beneficial or casual relationship to contracts or cost ob-

jectives as does the assembling activity. In this case, the contractor's single manufacturing overhead pool would not be homogeneous in accordance with the provisions of CAS 418, and separate pools would be required to comply with the standard.

The lack of homogeneity of indirect cost pools may often occur when a contractor's activities are decentralized. The use of separate indirect cost rates for each geographical location will normally produce more equitable allocations of indirect costs than the use of composite or company-wide rates. When off-site work—away from a contractor's plant—is performed at government facilities, separate off-site rates are usually required. Off-site overhead rates should be based on eliminating from the overhead pool those indirect costs that do not benefit off-site activities. For example, occupancy costs may be eliminated from off-site pools because the contractor uses government facilities rather than company-owned facilities.

From the government's perspective, it is generally maintained that the subdividing of indirect cost pools provides more accurate cost information for government contracts. But the number and type of cost pools should be governed by practical considerations. Some defense contractors have been very concerned about government personnel advocating a very large increase in the number of indirect cost pools. While additional cost pools may provide, to some degree, better matching of costs incurred to benefits received, contractors are concerned that it could create pricing problems, because of the sensitivity of smaller pools to changes in volume. For example, under the assumption that a contractor has a single plant-wide manufacturing overhead rate, if business volume should shift between several products, the changes in volume would cancel out and the overhead rate would not significantly change. But if each product has its own indirect cost pool, then the

several indirect rates could vacillate significantly if business volume changes. Also, from the contractor's perspective, it is more costly from an administrative standpoint to manage a large number of cost pools.

CAS 418 provides considerable guidance for selecting allocation bases for various indirect cost pools. To understand the allocation of operational indirect cost pools, a comparison with the allocation of the business segment G&A cost pool is beneficial. Recall that G&A costs relate to the operation of the business as a whole and the costs are allocated under CAS 410 on a base representing total activity. On the other hand, operational indirect cost pools are related to the production of goods and services and not to the operation of the business segment as a whole. Indirect costs related to the production of goods and services are allocated over the appropriate measure of productive activity. Basically, there are two kinds of operational indirect cost pools. They are set apart in CAS 418 as either cost pools that do or do not contain a material amount of the costs of management or supervision of activities involving direct labor or direct material costs. Indirect cost pools with a material amount of the costs of management or supervision are commonly referred to as overhead or burden pools. Those that do not contain these costs are commonly referred to as service or support centers. The preferred allocation bases set out in CAS 418 are contingent upon whether the cost pools contain material amounts of management or supervisory costs.

For cost pools containing significant management or supervisory cost, the preferred allocation base is direct labor hours or dollars, machine hours, units of production, or the appropriate measure that is representative of the activity being supervised. The most common base used for allocating overhead is direct labor dollars. This base is usually representative of the activity being supervised and the information

is readily available from the contractor's payroll and labor distribution records.

CAS 418 provides preferred hierarchical guidance for the allocation of indirect cost pools that do not include material amounts of the cost of management or supervision of activities involving direct labor or direct material costs. These indirect cost pools are referred to as service centers or support centers. Such centers are found throughout a business segment and constitute certain activities that usually feed productive functions or support management. Examples of such activities are computer services, company aircraft, transportation services, and print shops. The preferred allocation base is one that measures resource consumption, such as labor hours or machine hours expended in rendering the services. The second order of preference is measure of output, such as the number of units produced or reports processed. If neither of the first two measures is usable, a surrogate measure of output or activity that varies in proportion to the services received may be used, such as the number of employees serviced.

It should be realized that any given allocation base may be an acceptable base in a particular case and unacceptable in another. For example, a weakness of the most common overhead allocation base, direct labor dollars, is that the total direct labor cost represents the sum of the high- and low-wage workers. When labor categories within an overhead pool vary significantly, such as when there are high-priced research mechanics working with low-paid production workers, overhead cost allocations will be significantly different than if labor hours were used. In this case, if labor cost is used as a base, more overhead will be allocated to work performed by the higher paid workers. This allocation process could cause an overstatement of the overhead allocated to the work performed by higher paid employees.

Total direct material dollars may not be an appropriate base for allocating material handling costs if it includes significant costs for items that are not received at the contractor's plant but are shipped directly to end users. In addition, in some cases, the materials that are higher in costs, such as subcontracted items, may be far more expensive to purchase and handle. A separate overhead pool may be appropriate for the higher valued, more complex items required to be procured through major subcontracts. Also, in cases where there are two or three products produced, and one is fabricated with very expensive material and the others composed of something less expensive, the product with the high material costs would absorb a disproportionate share of the overhead expense. This problem could be very major from a financial standpoint when government-furnished equipment is provided by the government at no cost to the contractor and the allocation base used is direct material dollars.

The use of machine hours as an allocation base for manufacturing overhead is appropriate when investments in plant and equipment are substantial and manual labor is of lesser importance. With the recent increases in automated manufacturing operations, the use of machine-oriented bases will become more relevant in distributing indirect costs. The primary objection to the use of machine hours as an allocation base in the past has been the absence of adequate records on machine utilization for many pieces of equipment. Management is generally opposed to the establishment of new machine utilization records and the collecting of special cost data not otherwise required for management control purposes. With the recent emphasis on improving the accuracy of indirect cost allocation, in the future substantial emphasis will likely be placed on analyzing the various activities of a business, such as the volume of shop orders, engineering changes, and purchase requisitions.

Government acquisition personnel often get very involved in examining the indirect cost pool structure and the various allocation bases used by contractors. Their objective is to satisfy themselves that indirect cost allocations on negotiated contracts are fair and equitable and consistent with CAS 418. When CAS 418 was originally issued, the CASB intended that the creation of additional indirect cost pools would be required only if the changes would result in material differences in allocations of indirect cost. In addition, from an industry perspective, the general rule is that a smaller number of indirect cost pools is better unless a material difference in the allocation of indirect costs would occur. If government acquisition personnel believe that the contractor's overhead pool structure is not fair and equitable for some reason, they should be able to show that a material misallocation of costs to government contracts is the result—prior to recommending changes to the existing indirect cost pool structure.

The CASB realized that unique problems in cost allocation could occur and provided flexibility to the contracting parties. When a particular contract in relation to other contracts receives significantly more or fewer benefits from an indirect cost pool than would be reflected by the allocation of such costs using a base determined pursuant to CAS 418, the government and contractor may agree to a special allocation from that indirect cost pool to the particular contract.

CAS 420: Accounting for Independent Research and Development and Bid and Proposal Costs. This standard is concerned with defining Independent Research and Development (IR&D) and Bid and Proposal (B&P) cost, providing the criteria for accumulating these two very significant costs, providing criteria for allocating these costs to cost objectives, and ensuring consistency among contractors in the accounting for IR&D/B&P costs. Independent

research and development is defined as the cost of effort that is not sponsored by a grant or otherwise required in performance of a contract, which falls within the areas of basic and applied research, development, and systems and other concept formulation studies. B&P cost is defined as the cost of preparing, submitting, or supporting any bid or proposal that is not supported by a grant or otherwise required in performance of a contract.

The standard requires that the basic unit for the identification and accumulation of IR&D and B&P costs will be the individual IR&D or B&P project. The individual project cost consists of all costs, both direct and indirect, allocated to that effort except business unit G&A. For example, if an engineer is working on an IR&D project in the engineering organization, the cost of the project will include both engineering direct labor and engineering overhead. Of course, if materials were used on the project, direct material and material overhead would also be added to the total project costs. G&A is excluded because IR&D and B&P costs are of the same nature as G&A costs.

The standard requires that all IR&D and B&P costs accumulated at the segment level must be allocated to all final cost objectives at the business unit by means of the same base used by the business unit to allocate its G&A costs. The standard further provides that any IR&D and B&P costs accumulated at the home office that can be identified with a specific segment should be allocated to that segment. All other IR&D and B&P costs accumulated at the home office should be allocated among all segments by means of the same base used to allocate residual expenses as per CAS 403.

If a company has several segments performing IR&D projects that are technically applicable to only a portion of these segments, the standard provides that the cost of those projects be

allocated to the benefiting segments. The standard also permits a special allocation in unusual circumstances with an advance agreement required between the two parties.

CONTRACT PRICE ADJUSTMENTS

It is quite obvious that the requirements of the cost accounting standards are written primarily with the government's interest in mind. In fact, the government exercises tremendous power through the administration of the CASs because it can adjust a contract price after negotiations are completed. If a contractor fails to follow his disclosed cost accounting practices or comply with a cost accounting standard and as a result government costs are increased on a CAS-covered contract, the government is entitled to a downward price adjustment with interest. Any disagreements between the government and contractors regarding compliance are handled as disputes under the contract.

The government's right to a price adjustment on all CAS-covered contracts does not mean that a contractor cannot change his accounting system. Contractors often change their accounting systems subsequent to negotiations with the government. However, they must notify the government, in writing, of any proposed changes 60 days before the planned implementation. The notification is to include a description of the accounting change and an estimate of the general dollar magnitude that the change will have on all CAS-covered contracts. Subsequent to the notification of the change and when a more comprehensive analysis of the change has been completed, the contractor is required to submit a detailed proposal of the cost impact of the changes. If the proposed change decreases costs to the government, a downward adjustment will be negotiated. The government will allow a cost increase only if the contracting officer determines that the change is desirable and not detrimental to the government.

Both the government and the contractor can request a change in accounting practices. Over time, cost accounting practices that were once equitable may become inequitable due to changed circumstances. Consequently, to remain in compliance with the standards, contractors may need to change their cost accounting practices. For example, changes in manufacturing processes and practices, changes in product mix, conversion from direct labor to machine hour allocation bases, or adoption of standard costs may necessitate the revision of existing indirect cost rate structures. At the present time, the large-scale restructuring activities going on in corporations in the defense industry will probably initiate many accounting system changes. The current managerial emphasis on total quality management programs, such as efforts to reduce overhead costs or adoption of best practices, can also cause revisions in cost accounting practices.

Government acquisition personnel should be aware that accounting changes should be viewed from a long-term, total company perspective as opposed to a short-term, program perspective. A given program indirect cost allocation could be increased on a short-term basis; however, on a longer term basis the net effect could be lower costs for the government as a whole because other programs receive fewer cost allocations in the future. As an example, it would appear that in the long run restructuring changes should result in efficiencies and lower costs for the government. This is one of the primary reasons that the administration of the CASs is done by the administrative contracting officer (ACO). The ACO must view the contractor from a total company perspective and not from a program-specific perspective.

COST ACCOUNTING STANDARDS

CAS 401: Consistency in Estimating, Accumulating, and Reporting Costs. The cost accounting practices used in accumulating and reporting of actual cost must be consistent with the practices used in estimating costs in pricing proposals. Cost estimates must be prepared in such detail so that any significant cost can be subsequently compared with actual cost accumulations. The purpose of this standard is to enhance the likelihood that comparable transactions are treated alike and to obtain improved reliability of estimates and comparisons with performance.

CAS 402: Consistency in Allocating Cost Incurred for the Same Purpose. The same type of cost must be consistently classified as direct or indirect with respect to all work performed. The purpose of this standard is to require that each type of cost is allocated only once and on only one basis to any contract or other cost objective in order to prevent overcharging of some contracts and to eliminate double counting.

CAS 403: Allocation of Home Office Expenses to Segments. Establishes the criteria for allocation of home office expenses to segments and minimizes the amount of such expenses classified as residual. Home office expenses are to be directly allocated to the extent practical on the basis of the beneficial or casual relationship between the home office and segments. Home office expenses that are deemed residual expenses, which are those expenses that are not identifiable with specific activities of segments, such as the expenses of the Chief Executive Officer, must

be allocated in accordance with a three-factor formula when they exceed certain amounts. The three factors are operating revenue, payroll, and capital assets plus inventories. When the three-factor formula is not required, residual expenses must be allocated over a base that is representative of the total activity of the segments.

CAS 404: Capitalization of Tangible Assets. This standard facilitates the consistent measurement of costs based on a capitalization policy that adheres to the criteria of the standard. Contractors must have and consistently follow a written policy on capitalization practices. Currently, the acquisition cost of tangible assets must be capitalized when the acquisition cost is greater than \$5,000 and the estimated service life exceeds two years.

CAS 405: Accounting for Unallowable Costs. The purpose of this standard is to facilitate the negotiation, audit, and settlement of unallowable costs. Unallowable costs must be segregated and identified as such in all pricing and billing to the government. The maintenance of records in sufficient detail to provide visibility of unallowable costs and the accounting treatment of such costs is required.

CAS 406: Cost Accounting Period. This rule provides criteria for the periods to be used as cost accounting periods for contract estimating, accumulating, and reporting of cost. A contractor must use his fiscal year as his cost accounting period for developing overhead rates for pricing and charging any government work performed during the fis-

Exhibit 14. Cost Accounting Standards

COST ACCOUNTING STANDARDS (continued)

cal year, unless there is a mutually agreed-to period that is the established practice of the contractor.

CAS 407: Use of Standard Costs for Direct Material and Direct Labor. Provides the criteria for using standard costs for estimating, accumulating, and reporting costs of direct material and direct labor. The standard also provides criteria relating to the establishment of standards, accumulation of standard costs, and disposition of variances from standard costs. The stated criteria must be met before standard costs may be used for government contracts.

CAS 408: Accounting for Costs of Compensated Personal Absence. Compensated personal absence costs are to be assigned to the cost accounting period in which the entitlement is earned. Entitlement is recognized on an accrual basis at the time the employer becomes liable to pay in the event of a layoff or other disciplinary termination. The purpose of this standard is to assign costs to the cost accounting period in which the related labor is performed and in which labor costs are recognized.

CAS 409: Depreciation of Tangible Capital Assets. Provides criteria for assigning costs of tangible assets to cost accounting periods and for consistent allocation of those costs to cost objectives. The contractor may select any appropriate method of depreciation that reflects the pattern of consumption over the life of the asset. Estimated service lives are not to be less than the life spans that are supported by the contractor's records of past experience. Estimated residual values

must be determined for all capital assets or groups of assets. The estimated residual value must be deducted from the capitalized value in computing the depreciation cost base except in certain limited circumstances. Depreciation of assets used by service centers should be charged to the service center. Depreciation costs are generally allocated as indirect expenses to contracts. They may be charged directly only if the charges are based on usage and the costs of like assets used for similar purposes are also charged direct.

CAS 410: Allocation of Business Unit General and Administrative Expense to Cost Objectives. This standard provides criteria for the allocation of the cost of general and administrative expenses based on their beneficial or causal relationships. Business segment G&A must be grouped in a separate indirect cost pool and allocated on a base measured by cost input. Three types of cost input allocation bases are provided; total cost input, value added input, and single element cost input. General and administrative expenses whose beneficial or causal relationship to cost objectives can be more directly measured by other than cost input are to be excluded from G&A and must be separately allocated.

CAS 411: Accounting for Acquisition Costs of Material. This requires the contractor to have written statements of accounting policies and practices for accumulating the costs of material and for allocating costs of material to cost objectives. Material inventory records must be kept for each category of material with some exceptions. The standard provides that material specifically acquired

COST ACCOUNTING STANDARDS (continued)

for identified contracts may be charged directly to the contract. The cost of material used solely in performing indirect functions or which is not a significant element of production cost may be allocated to an indirect cost pool. The acceptable methods of costing when issuing material from inventory are; FIFO (first-in, first-out), moving or weighted average, standard cost, or LIFO (last-in, first-out).

CAS 412: Cost Accounting Standards for Composition and Measurement of Pension Costs. Prior to this standard, there was no authoritative guidance regarding components of pension costs that could be properly included as contract costs, or any criteria for measuring and assigning pension costs to cost accounting periods. This standard establishes the components of pension costs and the bases for measuring such costs. The standard also provides criteria for determining the amount of pension cost to be assigned to cost accounting periods.

CAS 413: Adjustment and Allocation of Pension Costs. This standard provides for adjustment of pension cost for actuarial gains and losses, their assignment to cost accounting periods, and bases for allocation of pension costs to business segments. Actuarial gains and losses are to be calculated annually and are to be assigned to the cost accounting period for which the actuarial valuation is made and to subsequent accounting periods. Pension costs are to be measured by the valuation of pension fund assets using a method that recognizes fair market values with consideration for short-term market fluctuations. Pension plan costs are to be separately allocated to segments based on active participation of employees.

CAS 414: Cost of Money as an Element of the Cost of Facilities Capital. This provides for the explicit recognition of the cost of money for facilities capital as an element of contract costs. A contractor's net book value of facilities is measured and allocated in accordance with set criteria. The allocated amount is used as a base to which a cost of money rate is applied. The rate is based on interest rates determined by the Secretary of the Treasury. Facilities capital items include recorded facilities, land, leased property, and corporate or group facilities. A facilities capital cost of money factor is developed for each indirect cost pool for which a significant amount of facilities capital has been allocated. The cost of capital committed to facilities is separately computed for each contract.

CAS 415: Accounting for the Cost of Deferred Compensation. This rule provides criteria for the measurement and assignment of deferred compensation costs to cost accounting periods. The cost of deferred compensation is to be assigned to the cost accounting period in which the contractor incurs an obligation to compensate the employee. The measurement of the amount of the deferred compensation is the present value of the future benefits to be paid by the contractor.

CAS 416: Accounting for Insurance Costs. This standard provides criteria for the measurement of insurance costs, the assignment of such costs to cost accounting periods, and their allocation to cost objectives. The amount of insurance cost to be assigned to a cost accounting period is the projected aver-

COST ACCOUNTING STANDARDS (continued)

age loss for that period plus insurance administrative expenses in that period. Insurance costs are to be allocated to cost objectives on the basis of the beneficial or causal relationship between the insurance costs and the benefiting or causing cost objectives.

CAS 417: Cost of Money as an Element of the Cost of Capital Assets Under Construction. Establishes criteria for the measurement of the cost of money attributable to capital assets under construction, fabrication, or development as an element of the cost of those assets. This standard improves cost measurement by providing for recognition of cost of contractor investment in assets under construction; and provides greater uniformity in accounting for asset acquisition costs.

CAS 418: Allocation of Direct and Indirect Costs. This provides for consistent determination of direct and indirect costs, provides criteria for the accumulation of indirect costs, including service center and overhead costs in indirect cost pools, and provides guidance relating to the selection of allocation measures based on the beneficial or causal relationship between an indirect cost pool and cost objectives. For those indirect cost pools containing a material amount of the costs of management or supervision of activities involving direct labor or materials, the selected allocation base is to be representative of the activity being managed or

supervised (e.g., direct labor, machine hours, direct materials). For indirect cost pools that do not contain a material amount of management or supervision costs, the allocation base shall be, in order of preference: an appropriate measure of resource consumption, measure of output of the activities, or a surrogate measure that varies in proportion to the services received.

CAS 419. This standard was consolidated with CAS 418 after comment.

CAS 420: Accounting for Independent Research and Development Costs and Bid and Proposal Costs. This rule provides criteria for the accumulation of independent research and development (IR&D) costs and bid and proposal (B&P) costs. It also provides criteria for the allocation of such costs to cost objectives based on the beneficial or causal relationship between such costs and cost objectives. The standard provides that the basic unit for the identification and accumulation of IR&D/B&P is the individual project, which is to include all allocable costs, including materials and overhead, except G&A expenses. IR&D and B&P expenses that are not allocated by a special allocation based on a beneficial or causal relationship must be allocated to final cost objectives on the same base used to allocate general and administrative expenses.

8

HOW THE GOVERNMENT MONITORS INDIRECT COSTS

INTRODUCTION

The DoD Federal Acquisition Supplement (DFARS) sets forth a very clear policy relating to the DoD approach for ensuring that managerial attention is focused on contractor indirect costs by both the contractor and the government. It strongly emphasizes that defense contractors are responsible for managing and controlling their own indirect costs. DoD's objective is to systemically monitor how the contractor plans and controls these costs and to conduct sufficient tests of the contractor's control system to ensure that the costs are effectively managed. Individual indirect expenses at contractor facilities simply cannot be monitored by government personnel due to the sheer volume of the business transactions involved. Thus, the focus of DoD monitoring activities is on the policies, procedures, and practices used by individual contractors in controlling their indirect costs. The bottom-line objective of DoD personnel in the final analysis is to ensure that DoD pays only its fair share of indirect costs that are allocated to government flexibly priced contracts.

Within the government, the monitoring of indirect cost is a major activity of the contract administration function (defined in FAR Part 42). The organization primarily responsible for contract administration within DoD is the Defense Contract Management Command (DCMC). This organization is in effect an extension of program offices at contractor plants. The DCMC has recently concentrated top management attention toward addressing the moni-

toring of indirect costs and has been aggressively pursuing a major command initiative of "Overhead Management." DCMC, as well as many major program managers, has become very concerned with the increasing level of indirect costs throughout the defense industry. "Program affordability" has become the managerial keyword for the continuation of major defense programs as the defense procurement budget declines. In addition to the overall industry issue of a declining business base that drives increases in indirect rates, many contractors have been experiencing extraordinary changes in their corporate structures due to merger, acquisition, restructuring, and consolidation activities. In the short run, these significant organizational changes tend to increase indirect costs. In addition to the structural changes, determining the responsible party for paying for expensive environmental cleanup costs has become a major indirect cost issue at senior levels within the acquisition community. So a very complex area of contract management has become even more complicated. Since the DCMC is the DoD organization responsible for determining whether indirect costs are reasonable, allowable, and allocable, it must resolve these issues in the process of negotiating indirect rates with numerous defense contractors.

Government and industry are very different in terms of how they assign the responsibility for the monitoring of indirect costs. In industry, as we have explained in detail earlier, the monitoring of indirect cost is essentially a financial management function. But in the government

the function primarily falls under the heading of contract management.

To come to grips with the increasingly complicated area of monitoring indirect cost and to address the concerns of program managers, who have experienced significant increases in indirect rates, the DCMC has recently established an Overhead Center to assist administrative contracting officers (ACOs) in the indirect cost arena.

DCMC OVERHEAD CENTER OF EXCELLENCE

DCMC management realized that the issues involving the allowability and allocability of indirect costs had become so complicated that defense contractors when negotiating with the government would typically bring in professional outside consultants to address some of the issues related to mergers, acquisitions, reorganizations, pensions, environmental pollution, and other specific issues. Unfortunately, there was no place within DCMC for contract management personnel to obtain such professional advice and guidance related to many of these emerging issues. In addition, DCMC was very concerned with ensuring that defense contractors received consistent treatment from the government in negotiating the very large and complex issues involving indirect cost. Consequently, DCMC established an Overhead Center to provide contract management personnel with a central place for obtaining policy advice and guidance related to indirect cost matters. The center is responsible for bringing a national focus to indirect cost issues, performing research and analysis to support field negotiation, anticipating emerging issues and acting to influence DoD policy, providing timely information to program offices, review of precedent setting issues (especially those involving the cost accounting standards and cost principles), research and analysis of Armed Services Board of Contract Appeals (ASBCA) and Court of

Claims legal decisions for supporting negotiations, analysis of negotiation results to derive "lessons learned" for future negotiations, and maintaining a core capability for performing overhead "should cost" reviews. We will discuss "should cost" reviews in more detail when we examine government monitoring techniques.

The Overhead Center is staffed with a small group of specialists in such areas as business reorganizations, pensions, cost accounting standards, cost principles, independent research and development, bid and proposals, electronic data processing, and actuarial science. Essential industrial engineering and legal support is provided to the Overhead Center on a matrix basis at DCMC Headquarters. Certain specialized review teams operating in the field, such as insurance, pension, and purchasing now report directly to the center. Later we will discuss the functions performed by these specialized review teams.

RELATIONSHIP TO PROGRAM OFFICES

In the monitoring of indirect costs by the DCMC, great reliance is placed on program offices to help establish a realistic forecast of the business base. Program offices are in an excellent position to provide current information (such as quantity forecasts, delivery schedules, requirement changes, production options, and time phased estimates) that is invaluable for negotiating indirect cost allocation bases with defense contractors. Program managers should make special efforts to assist the government monitoring team in any possible way and should work toward strengthening the monitoring process by improving the management visibility related to their programs. As an absolute minimum, information requested by DCMC from program managers should provide valuable information for an independent "sanity check" on estimates received from contractors.

Program offices should to be very actively involved in the government's monitoring process in order to ensure that their contractors are adequately controlling indirect costs. It is essential that they be very familiar with their contractor's indirect cost structure in order to understand programmatic functions related to cost estimating, pricing, negotiating, and cost reporting.

GOVERNMENT TEAM

Procurement Contracting Officer (PCO)

The PCO is the government's legal representative and is the individual with the authority to award, administer, and terminate government contracts. However, certain responsibilities of the PCO can be delegated to authorized representatives. It is customary after award of major defense contracts for the PCO to delegate responsibility for administration of the contract to an administrative contracting officer (ACO). In so doing, the PCO still retains overall control of contracts. The ACO supports the PCO by obtaining timely and accurate information about numerous contractor operations. This support is especially valuable in the indirect cost area because indirect rates are of major interest to the PCO for contract negotiation purposes. It is essential that continuing liaison be maintained between the PCO and the ACO during the entire life of contracts.

Administrative Contracting Officer (ACO)

The contract administration responsibility delegated to the ACO includes many general business-oriented functions. Overall, the FAR identifies some 60 contract administrative functions that may be delegated to various personnel working in the field. Some functions relevant to the area of indirect costs include negotiating indirect rates to be used for government contracting purposes, negotiating advance agree-

ments, reviewing rates as indirect costs are incurred, analyzing historical indirect costs trends, analyzing variances between incurred costs and actual costs, determining reasonableness of indirect costs, and determining the adequacy of contractor's accounting systems. In practice, the monitoring of indirect cost involves every activity ongoing at a defense contractor's plant. All activities are in some way included in forecasted operations as either a direct or indirect cost. Therefore, of necessity the monitoring of indirect cost must be a team effort. The team leader for the government monitoring efforts is the ACO, who usually is located on-site at the contractor's plant. The ACO is responsible for coordinating the efforts of many government specialists in residence at the contractor's plant, as members of the government team.

Cost Monitor

In some cases, DoD requires (under provisions of DFARS 242.70) that a formal program of cost monitoring be established. Generally, a formal program is required when sales to the government during a contractor's next fiscal year are expected to exceed \$100M for other than firm-fixed-price and fixed-price with escalation contracts or when the government's share of indirect costs is at least one-half of the contractor's total indirect costs. For contractor locations falling under this requirement, a cost monitor is assigned and is the designated individual responsible for monitoring indirect cost. The cost monitor works for the ACO and is responsible for monitoring the entire contractor management control system from forecasting through final settlement of actual indirect rates. In addition to supporting the ACO in the review and evaluation of contractor indirect rates, the cost monitor identifies areas of indirect costs that are candidates for an in-depth review by the government monitoring team. We will discuss these reviews later when we cover the vari-

ous techniques used by the government in its monitoring efforts. DCMC also has individuals who are designated as regional cost monitoring specialists, who have the responsibility for providing guidance and ensuring consistency in the monitoring of indirect costs at contractor operations located in their respective regions. A DFARS case was recently submitted that could change the responsibility of the cost monitor relating to the monitoring of policies, procedures, and practices used by contractor to control direct and indirect costs at major contractor locations.

Corporate Administration Contracting Officer/Defense Corporate Executive (CACO/DCE)

Contractors with more than one business segment frequently have various corporate-wide policies, procedures, and plans that necessitate government review and negotiation of certain indirect costs at the corporate headquarters level. For example, pension plans, health care plans, insurance programs, independent research and development programs, bid and proposal programs, executive compensation plans, union agreements, foreign operations, and taxes may be managed at the corporate level. In addition, some corporations operate with centralized management control and may have considerable decision-making authority at the corporate level. The related indirect costs at the corporate level must be allocated on some reasonable basis to the business segments. Such indirect cost allocations often involve large, complex costs collected at intermediate group as well as at corporate offices. Today, in the declining defense environment, many large indirect costs are increasingly being managed at the corporate level (such items as restructuring activities, discontinued operations, and environmental cleanup operations). Such cost allocations significantly affect the work of many ACOs who are monitoring indirect cost at the

business segment level. In this situation, the government may designate a corporate administration contracting officer (CACO), who is responsible for contract administrative functions, including the monitoring of indirect costs, at the corporate level. The CACO ensures consistency in the various business segments performing government work and may negotiate advance agreements for certain major indirect costs. The CACO must work closely with and provide significant inputs to the ACOs located at the business segment level. In effect, the CACO is negotiating corporate indirect cost allocations on behalf of all ACOs. DCMC has recently designated defense corporate executives (DCEs) at the nine largest defense contractors. DCEs have corporate-wide responsibility and act as the DoD liaison representative with corporate management.

Defense Contract Audit Agency (DCAA)

The DCAA is the principal advisor within DoD on all financial accounting, cost accounting, and contract audit matters relating to the defense industry. Therefore, the cognizant DCAA auditor, usually located at major contractor locations, plays an important role in all matters relating to indirect costs. DCAA conducts several types of contractor management systems audits as well as pre-award audits, proposal audits, and audits at completion of contracts, all of which are instrumental in establishing indirect rates. It is important to note that DCAA operates in an advisory role in relationship to the contract management community. While the establishment of all indirect rates with major contractors is a joint effort on the part of the ACO and the DCAA, the ACO is the individual who is the final decision-maker and the individual who has the authority to negotiate rates with the contractor. An exception is that many small contractors have what are referred to as "audit-determined" rates, with the DCAA being the initial decision-maker for the govern-

ment. In the case of audit-determined rates, if an agreement cannot be reached between the DCAA and a contractor, the issue is elevated to the ACO for resolution.

Other Team Members

There are many individuals usually located at contractors' plants who are members of the government monitoring team. The engineer is one of the key members. He provides the important technical capability for reviewing and evaluating direct material, direct labor, and other direct cost estimates that are contained in the contractor's indirect rate forecasts. Normally, the engineer will be very familiar with the contractor's engineering processes, manufacturing processes, work measurement system, and plant layout. He will be extremely valuable in evaluating the contractor's forecasted engineering workload, manufacturing rates, size of workforce, skill mix of employees, realization and efficiency rates, and amortization methods for special tooling and test equipment. Other government personnel who play important roles in the indirect cost monitoring process are specialists in the areas of quality, packaging, transportation, security, and government property. Again, the scope of indirect costs necessitates that monitoring efforts by the government must be a team effort. Each of the individuals on the team must do their part of the overall effort in order for the DoD to meet its objective of paying for only its fair share of the contractor's indirect costs.

MONITORING TECHNIQUES

The government's indirect cost monitoring efforts consists of several managerial techniques, including the establishing of three separate types of indirect rates to be used solely for government contracting purposes, tracking of actual rates as they are incurred, and performing several types of penetrating reviews of contrac-

tor management control systems and in-depth examinations of specific types of indirect costs.

The primary technique used by the government to ensure that it pays for only its fair share of contractors' indirect costs is to establish totally separate rates with contractors to be used for government contracting purposes. These rates are known as forward pricing, billing, and final rates. Since defense contractors usually have some unallowable costs in every indirect cost pool, all three of these rates will normally be less than the contractor's true indirect rates. First of all, forward pricing rates are developed for the pricing and negotiating of new procurements and changes to existing procurements. These rates represent estimates of anticipated future indirect costs. The second rate developed for government contracting purposes is the billing rate, which is used by the contractor to obtain payment for indirect costs incurred during the performance of contracts. Finally, actual rates are negotiated at the conclusion of the contractor's fiscal year to arrive at the final allowable cost on all cost-type contracts. All three of these rates are developed for each contractor fiscal year. Exhibit 15, "Life Cycle of Indirect Cost Rates," summarizes the three rates used for government contracting purposes. The following narrative provides an explanation of the process used by the contractor and the government in developing each of the indirect rates and the relative importance of the rates to program management personnel.

Forward Pricing Rates

Forward pricing rates, or bidding rates as they are sometimes called, are projected for each indirect pool in the contractor's cost accounting system and are used by contractors in developing cost proposals to be submitted to the government. These rates are derived from the company planning process, where the contractor projects detailed costs, direct and indirect,

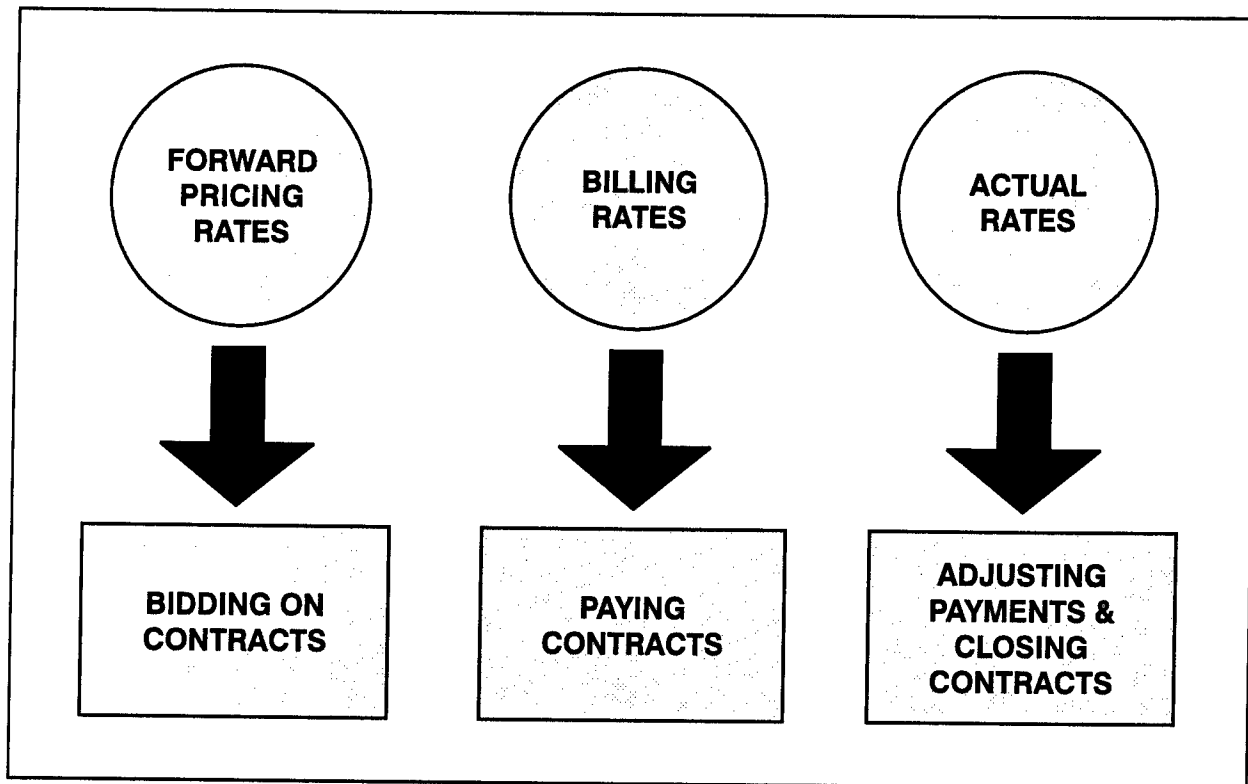


Exhibit 15. Life Cycle of Indirect Cost Rates

that will be incurred in the accomplishment of projected sales. For the direct cost, the contractor's cost estimating system will provide time-phased cost estimates for each element of direct labor, direct material, and other direct charges. These costs then will be used in a determination of the appropriate amount of indirect cost and allocation bases after adjustments are made to comply with government contracting requirements that dictate the allowability of costs. Thus, the forward pricing rate represents a projected "allowable" rate based on a total estimated business volume.

For large contractors, the ACO and the contractor will attempt to negotiate a written agreement for forward pricing rates to be used by the contractor on all proposals to the government. The resulting Forward Pricing Rate Agreement (FPRA) is very beneficial to program managers because without the agreement, all indirect rates will require separate negotia-

tions with contractors as a part of the negotiation of each contractual action. An FPRA is also very beneficial to the contractor because he can use the same rates with all government customers and does not have to separately negotiate his indirect rates with each and every customer. Since the FPRA benefits both parties, it may be requested by the procurement contracting officer, administrative contracting officer, or the contractor.

It is important to recognize that in the negotiation of forward pricing rates, the contractor has far more information available to it for estimating purposes than the government does. Therefore, the government requires the contractor to submit a detailed proposal for these business-wide costs. The government's job is then to evaluate what the contractor has proposed to them as opposed to making totally independent estimates.

A contractor's forward pricing proposal should contain the following types of data:

- projections and management assumptions relating to the business segment sales forecast;
- delineation of potential customers, specific weapons system programs, foreign military sales, and commercial sales;
- identification of any planned corporate structure changes, mergers, acquisitions, discontinuation of operations, etc.;
- estimated capital investments for plant, equipment, and tooling;
- planned disposition of idle facilities;
- engineering workload projections, planned material requirements, manufacturing schedules, and product delivery schedules;
- time-phased breakdown of forecasted direct employees anticipated to be working on contracts, independent research and development projects, bid and proposal projects, and company capital investment projects;
- data supporting various direct cost estimating factors unique to the contractor's operations;
- estimated direct cost bases used to allocate indirect costs; and
- time-phased breakdown of forecasted indirect employees by function for each indirect cost pool.

The contractor is not required to certify cost or pricing data related to a forward pricing rate proposal. Under the Truth in Negotiations Act (TINA), the certificate that is signed in conjunction with each particular contract proposal also covers the forward pricing rates related to

that proposal. So the contractor must make efforts to ensure that the rates are kept current. Typically, a rate analysis is made at a minimum on a quarterly basis to ensure that a determination is made as to whether a revised forward pricing proposal must be submitted.

The ACO usually immediately forwards the contractor's forward pricing rate proposal to the DCAA auditor, cost monitor, and other indirect cost team members for review and analysis. Upon completion of the analysis, team members and procuring activities having significant interest will be requested to participate in developing the government's negotiation objectives and to assist in rate negotiations. During the negotiation process, the ACO may also refer complex problem areas to their regional office and to the DCMC Overhead Center for assistance. Upon completion of negotiations and the conclusion of an agreement with the contractor, the ACO forwards a copy of the FPRA to all procuring activities having a substantial amount of business with the contractor.

The FPRA will be used in the negotiation of contractual actions expected to be performed during the period covered by the agreement. In addition to indirect rates, the FPRA usually contains many factors to be used in estimating various direct cost elements. For example, based on the company's projected salary merit program and union contract terms, monthly labor rates by labor category may be agreed to with the government in advance. Other factors that are commonly negotiated in advance as part of the FPRA are factors for materials escalation, excess usage, obsolescence, scrappage, labor realization and efficiency, and certain factors of production, such as manufacturing planning, quality assurance, and test. An FPRA is very valuable to program offices because it enables them to focus their efforts on estimates of direct cost drivers that are unique to a program. Indirect rates that are applicable to all DoD

business can then be applied to the direct cost and do not require separate negotiation. Typically, an FPRA will cover the current year and at least two future years. However, the agreement provides for cancellation at the option of either party and will require the contractor to submit to the government any significant change in forecasted rates.

Of paramount importance in establishing an FPRA is the establishment of realistic projections of the volume of business that the contractor will accomplish in future years. Actually, program offices are in the best position to provide ACOs with such estimates. Major program managers can provide valuable information concerning their overall program schedule, major milestones, program time phasing, delivery schedules, follow-on buys, major modifications, foreign military sales potential, future research and development requirements, spare parts buys, and future logistical requirements. Often, the program office will have information that is more current than that available to the contractor. For example, the program office could be in the process of investigating program options due to a schedule slip necessitated by funding reallocations. The program office could provide current inputs to the ACO by validating the program strategies and assumptions made by the contractor in preparing FPRA inputs relative to their respective programs. So important is this input from program offices that ACOs may often invite representatives from major program offices to participate in actual FPRA negotiations. Unfortunately, discussion with operating personnel in the field indicates that requests for assistance from ACOs to program offices are sometimes ignored. From a program management perspective, not only should program managers assist ACOs in negotiating FPRAs but they should strongly encourage their contractors to enter into an FPRA in order to reduce the work requirements of procuring ac-

tivities related to each proposed contractual action.

In some cases, it may not be possible to negotiate an FPRA. Contractors may be unwilling to negotiate because the business base is changing rapidly, significant issues may be in litigation, certain corporate or group issues are unresolved with the government, cost accounting changes are in process, or corporate merger and acquisition activities are under way. In addition, the government and the contractor may reach a negotiation impasse for many reasons. In such cases, the ACO will normally unilaterally establish forward pricing "recommended rates" (FPRRs) for use by procuring activities in negotiating future DoD requirements. In some instances, the government and the contractor may negotiate some of the rates but not all, in which case there could be a partial FPRA. It is important to note that, in addition to using the forward pricing rates for cost proposal purposes, the rates are also used for numerous cost estimating purposes and for preparing estimates at completion for contract performance reporting.

Billing Rates

Since indirect costs can only be settled with certainty at the end of the contractor's fiscal year, a different rate is needed to make cash payments to contractors for the estimated allowable indirect costs as they are being incurred. In determining the amount of "reimbursable" indirect cost, the contractor uses a billing or provisional rate. The billing rate provides a method for interim reimbursement of indirect cost at estimated rates, which are subject to final adjustment. The billing rate influences how rapidly a contractor is reimbursed for indirect expenses incurred and affects cash flow but not the price that the contractor will ultimately be paid. Billing rates are used by the contractor in submitting invoices for progress payments on fixed-price contracts as well as for cost incurred

on cost reimbursement-type contracts. If the contractor and the government cannot agree in advance on billing rates, the ACO may unilaterally determine the billing rates to be used for paying the contractor. The objective in setting the billing rate is to as accurately as possible approximate the rate for the year using actuals to date and estimates for the remainder of the year. If a significant difference between the billing rate and the actual rate to date develops, it is in the best interest of the government and the contractor to adjust the billing rate to its most likely year-end value. The billing rate considers that some indirect costs will potentially be disallowed by the government and provides for a slight margin of error in anticipating year-end actuals. The objective for the government is to develop billing rates that are set low enough to avoid overpayment to the contractor for indirect costs incurred.

It is important to keep in mind that billing rates are temporary in nature. The contractor is paid for incurred indirect cost on a temporary basis, but actual indirect rates that will be negotiated much later are permanent. An often-asked question is why it is necessary to have billing rates if you already have forward pricing rates. The answer is simply that both the government and the contractor become smarter as time passes because they are accumulating actual experience for indirect costs incurred in each overhead pool and actual experience for each direct cost allocation base. As the year progresses, the billing rate becomes a far more accurate basis for paying the contractor for indirect costs incurred than a forward pricing rate would be.

Final Rates

The third and last type of indirect rate used solely for government contracting purposes is the final rate, which cannot be negotiated until some time after the end of the company fiscal year. In practice, this rate is often referred to as

the "year-end actuals." Within 90 days after the end of its fiscal year, the contractor is required to submit its final indirect rate proposal. In conjunction with the submission, DoD contractors are required to certify that all costs included in the proposal are allowable in accordance with contract requirements and DoD cost principles. DFAR 231.7042.709 provides that penalties may be assessed if a contractor claims a cost in an indirect cost proposal that is expressly unallowable or mutually agreed to be unallowable. These unallowable costs are those costs that are specifically called out as unallowable by law, regulation, or contractual provision. The ACO is responsible for determining whether or not a penalty will be assessed. Penalties, which were initiated by Congress, can be very severe as they may be as much as two times the amount of the unallowable cost in addition to the amount of unallowable cost plus interest. For example, if a contractor included \$1M of expressly unallowable cost in its proposal, it could conceivably cost the company \$3M plus interest.

The contractor's final indirect rate proposal is reviewed and analyzed by the cost monitor and the DCAA for allowability of actual costs and recommendations are made to the ACO for negotiating final rates. These reviews are often referred to as incurred cost reviews. The ACO will evaluate all recommendations made by the cost monitor and DCAA, and it is the ACO who has the responsibility for negotiating "fair and reasonable" final rates. Recall, however that the CACO must negotiate final amounts relating to corporate level indirect costs, which are allocated to the business segments. Upon completion of negotiations, a written final indirect cost rate agreement is signed by the contractor and the government. The agreement will be automatically incorporated into contracts in accordance with the "allowable cost and payment" clause. Final indirect rates may be established by the method of audit determination at some smaller contractor operations that were not

specified for ACO determination. If an agreement cannot be reached between the contractor and the government, such disagreements will be considered to be a dispute within the meaning of the disputes clause in the contract. It should be noted that time delays are often encountered before final rates are agreed to, therefore billing rates may be retroactively revised to prevent significant over- or underpayments during the delay. The billing rate revision will reflect a decrement factor as determined by the government for historically disallowed amounts from prior years' audits.

The final rate is determined by dividing the negotiated allowable indirect cost by the negotiated allowable direct allocation base for each indirect cost pool. Unless certain costs are subject to a requirement of a legal decision, final rates are not subject to change. Final indirect rates are used to adjust billing rates on cost reimbursement contracts to arrive at the actual amounts of indirect costs that the contractor will be reimbursed for the applicable year. Final rates also provide the essential information for closing out cost-reimbursable contracts. Such contracts cannot be closed, with full payment of fee, until government approved final rates are established.

In previous years, it was not unusual for the negotiation of final rates to take five years or longer. In the past, the settlement of final indirect rates was a low priority, with primary emphasis being placed on current contractual actions. The result was a very large backlog of contracts awaiting final closeout. Delays in negotiating final actual overhead rates have recently created exceptionally difficult problems because of the impact of defense mergers and acquisitions. For example, Lockheed merged with Martin-Marietta, who had acquired General Electric, who had acquired RCA. Yet, according to the Aegis Program Office, the final rates had not been settled for work performed

by RCA while the current work was being performed by Lockheed-Martin. Needless to say, it was extremely difficult for current contractor employees to locate records and to provide explanations relating to the allowability of indirect costs dealing with acquired contractors. Recall that it is the responsibility of the contractor to prove the reasonableness of costs. Within the past few years, DoD management has taken significant steps to deal with this problem. The big driver in focusing managerial attention on settlement of final rates has been changes in M accounts with the potential cancellation of program funds. (Refer to Chapter 6 for a discussion of the M account legislative issue.) The settlement of final indirect rates and the closing of old contracts is now a high priority issue in program offices. Both DCMC and DCAA are tracking this issue closely; it is one of their top priorities. For example, they have a very aggressive goal of reducing the backlog of unsettled years to one year by fiscal year 1997. In order to accomplish this goal they are often working multiyear reviews (e.g., examining two to three years of indirect costs at once instead of just one year at a time). In some cases, efforts are being made to isolate certain areas of disagreement and then settling the areas that are not affected. If necessary, the areas of disagreement will be settled later through the use of a reopen clause.

An often-asked question is: Which of the three indirect rates gives the government the most control over indirect costs? The answer, very definitely, is forward pricing rates. The establishment of forward pricing rates represents the only opportunity that the government has to affect indirect costs before the costs are incurred. From the government's perspective, it is often very difficult to argue that a cost is unreasonable when the contractor has already paid it. Also, while the negotiation of final rates is important for determining the final costs to be charged to cost-type contracts, it is not that sig-

nificant for firm-fixed-price contracts. The negotiation of final rates does not affect the price to be paid on firm-fixed-price contracts. The only value added with final rates for firm-fixed-price contracts is the managerial visibility that it provides for the negotiation of subsequent forward pricing rates. It is in the best interest of the government to stress indirect cost avoidance by rigorously pursuing the negotiation of forward pricing rates.

Tracking Of Indirect Costs

Once the contractor's fiscal year begins, the ACO (or the cost monitor, when applicable) will set up a system for tracking the contractor's actual indirect costs as they are incurred. In this regard, the leading thrust of the DCMC major initiative on overhead management is the intensified tracking of indirect costs by DCMC personnel. The primary objective of the intensified tracking is to alert the government team of any significant cost overrun problems and to gauge the reasonableness of forward pricing and billing rates. A comparison of actual versus target is made for both the indirect cost elements and the direct cost allocation bases for each indirect cost pool. The comparison is made each month for both the monthly incremental and year-to-date amounts. In order to avoid duplication of effort with the contractor's management control system, the government team should make special efforts to identify existing reports used by the contractor for controlling indirect costs. Typically, one would expect contractors to prepare monthly reports that summarize the actual allowable overhead rates on a monthly and year-to-date basis. Recall that the contractor is responsible for advising the government of any significant rate changes in order to comply with Truth in Negotiations Act requirements. The actual rates should be compared to forward pricing and billing rates and major differences analyzed to determine if the differences are temporary or permanent. Con-

tractor analysis results should be disclosed to the ACO. If the contractor's budgetary and variance analysis procedures are considered to be adequate, the outputs from the contractor's system may be acceptable for use by the government team in monitoring the contractor's indirect costs. This method is the most economical and efficient way to monitor contractor indirect costs, since it precludes the preparation of special government reports.

Generally, in performing a variance analysis the government team will request a written explanation from the contractor for variances of: (1) indirect cost elements that are plus or minus 3% of the target and greater than \$10,000 and (2) direct cost allocation bases that are plus or minus \$100,000 of the target. Significant variances could lead to further analyses by the government team and could also lead to a formal functional review of some operational aspect of the contractor's business. The government team will determine whether any unfavorable trends are likely to continue for the remainder of the year. If the trend is likely to continue, the contractor will be notified that the current rates are no longer valid for forward pricing and billing purposes. Dependent upon the significance of the problem, a written corrective action plan may be requested from the contractor.

Some large contractors have recently started a practice of inviting DCMC personnel to their internal monthly overhead meetings. The purpose of these meetings is to address overhead problems quickly before large cost overruns are experienced. This practice significantly reduces the administrative requirements, as written reports and explanations may no longer be necessary in many instances. The practice also seems to build an open, trusting working relationship between the parties.

To avoid any management surprises for program offices, the government team should en-

sure that significant indirect cost problems, along with proposed contractor solutions, are immediately brought to the attention of the program office. Indirect cost problems could have a very significant financial impact upon program cost estimates.

Functional Reviews

A formal cost monitoring plan is required for those contractor locations when sales to the government for the next contractor fiscal year are expected to exceed \$100M for other than firm-fixed-price and fixed-price-with-escalation contracts. A formal plan may be established by DCMC for contractors with less than the above criteria if the cost benefits to be derived from such a monitoring plan are considered to be warranted and the government's share of indirect costs allocable to cost and flexibly priced contracts is expected to be at least one-half of total indirect costs. The principal element of the plan is the selection of in-depth functional reviews to be conducted at the contractor's plant. These reviews represent a detailed analysis of contractor significant operations to evaluate the effectiveness of his policies, procedures, and practices followed in managing his operations.

The cost monitor has the responsibility for developing a fully coordinated plan for the next contractor fiscal year. The selection of functional reviews to be performed necessitates a risk assessment of areas in question and focuses on contractor operations that have the greatest potential for generating a savings to the government. Program offices and other government team members should be solicited for topics of concern in developing the monitoring plan, and they should be closely coordinated with the DCAA to prevent duplication of effort. The primary difference in the monitoring activities performed by DCMC and DCAA is that DCMC focuses more on the technical aspects of contractor operations while the DCAA focuses on

the financial and accounting aspects. Later we will discuss the various reviews the DCAA performs that relate to indirect cost monitoring.

DCMC functional reviews address significant aspects of contractor operations such as material acquisitions, engineering activities, production operations, quality assurance, labor utilization, facilities engineering, environmental protection, and property and equipment utilization. The focus of the reviews is the avoidance of future costs. Government team members may recommend that in-depth functional reviews be undertaken to obtain significant savings when they observe the following: high excess usage rates, high inventory adjustments, excessive expediting, questionable labor realization and efficiency factors, indications of overstaffing, idle facilities, excess equipment, production bottlenecks, late deliveries, out-of-station rework, and significant overtime.

Joint reviews have been encouraged to the maximum extent by the headquarters of both DCMC and DCAA. In some cases, contractor personnel may also participate jointly with government teams in performing in-depth functional reviews. Including contractor personnel on government review teams has been found to eliminate subjective interpretations and to provide a positive influence toward arriving at corrective action for deficiencies identified in a more unified manner.

Contractor Systems Reviews

The cost monitoring plan may contain certain large-scale, systems-oriented reviews that are required under certain conditions by the FAR, DFARS, or DoD Instructions. The pertinent regulations or instructions designate the responsible lead organization, such as the DCMC or DCAA, and specifically spell out the criteria for the reviews. The performance of required systems reviews often employ government spe-

specialists who are not on site at the contractor's plant. Consequently, government specialists from external organizations may be assigned on a temporary basis for a limited period of time, usually a matter of weeks.

The performance of the required systems reviews provides valuable feedback to government personnel on the reasonableness of contractors' indirect rates. Essentially, contractor functions being evaluated during systems reviews are functions that are performed by indirect-type employees. Therefore, in the performance of the reviews, information is obtained on the various tasks being performed by indirect personnel and an essential part of each review should be to evaluate whether the functions are being performed in an efficient and effective manner. Any significant indirect cost problems, such as overstaffing or uneconomical practices, should be discussed during the systems reviews.

The following required reviews and surveillance activities are very important to the monitoring of indirect cost and should be scheduled, if at all possible, to occur before forward pricing rate negotiations are completed.

Contractor Purchasing System Reviews

FAR 44.3 requires a contractor purchasing system review (CPSR) to be conducted for each contractor whose sales to the government, using other than sealed bid procedures, are expected to exceed \$25M during the next fiscal year. If there are indications of significant purchasing problems, the reviews may also be considered at smaller contractor locations. The CPSR is conducted by the cognizant contract administration organization at least every three years. A CPSR requires a comprehensive evaluation of a contractor's purchasing organization and practices. Upon completion of the review, the cognizant ACO is responsible for granting,

withholding, or withdrawing approval of the contractor's purchasing system.

Normally, a purchasing system analyst serves as the team leader and actually conducts the reviews on behalf of the ACO. For contractors with major defense systems, the review team includes specialists in engineering, production, quality assurance, and acquisition management functions. Recognizing that the material and subcontract content for a large defense production contract can often be very substantial, DoD is very interested in the efficiency and effectiveness of the contractor's purchasing system. Purchasing functions have a significant impact on indirect costs, as large numbers of contractor indirect employees are typically performing the functions of preparing requests for proposals, performing cost/price analysis, making source selection decisions, buying parts from vendors, administering subcontracts, arranging leases, and preparing and maintaining purchasing policies and procedures.

Estimating System Reviews

FAR 15.811 requires contractors to have adequate written procedures to document the utilization of reliable and efficient estimating techniques. A large defense contractor is subject to estimating system disclosure, maintenance, and review requirements if in its preceding fiscal year the contractor received DoD prime contracts or subcontracts totaling \$50M or more for which certified cost or pricing data were required. In addition, if a contractor received \$10M or more in such contracts and the contracting officer, with concurrence or at the request of the ACO, determines it to be in the best interest of the government (if for example significant estimating problems are believed to exist), the contractor may be subject to an estimating system review (ESR). The reviews are conducted every three years but may lengthened or shortened based on an assessment of

the contractor's past experience and current vulnerability.

The cognizant DCAA auditor, on behalf of the ACO, serves as team leader in conducting estimating system reviews. Estimating system reviews can be very complex, and normally the ACO will designate quality control, production engineering, packaging, transportation, and other specialists to assist DCAA as members of the government review team. The ACO has the authority to approve or disapprove all or selected portions of the contractor's estimating system.

A contractor's estimating system includes his policies, procedures, organization, estimating methods, and work measurement techniques. Estimating functions are performed predominantly by indirect-type employees and the functions typically will have a significant impact upon indirect costs. In conjunction with performing estimating system reviews, government technical specialists will normally examine production processes, shop practices, machine loadings, time and motion factors, and other areas. The continuing performance of estimating system reviews on a cyclical basis provides the government with significant insight into the contractor's ability to manage his indirect costs. The scope of the estimating system review also includes an analysis of the methods used to establish reliability in the sales forecast and the extent to which the forecast data are reflected in indirect cost projections. It also includes an analysis of the contractor's plans relating to the acquisition of new and improved capital equipment, which will generate large depreciation- or amortization-related indirect costs.

Compensation System Reviews

FAR 42.302 requires the ACO to review the contractor's compensation system. However,

DCAA is designated as the responsible organization within DoD for actually performing compensation system reviews (CSRs) as separate assignments. DCAA makes recommendations to the ACO, who is responsible for negotiating indirect rates. It is DCAA policy that an employee compensation system review be performed at those defense contractor locations where in the preceding contractor fiscal year, the contractor received at least \$50M in government sales under negotiated prime contracts and subcontracts for which such sales represented at least 10% of the total sales volume. Compensation system reviews are scheduled every three years and to the extent possible are scheduled to occur prior to major proposal actions. A CSR represents a complete evaluation of the contractor's employee compensation system including policies, procedures, practices, and costs. The review is made to determine whether the compensation structure conforms to sound business practices and whether employee compensation costs meet the tests of reasonableness in accordance with FAR 31.205-6. The scope of the CSR includes executive compensation, bonuses, salary merit increases, incentive awards, employee stock options, off-site pay, severance pay, cost of living allowances, health and life insurance, pensions, retirement, annuities, and other fringe benefits. Of course, the scope of the review includes both indirect and direct employees. Due to the highly technical nature of defense work, labor costs are usually significant cost drivers for both direct and indirect costs.

Contractor Insurance and Pension System Reviews

DFARS 242.73 requires a contractor insurance and pension system review (CIPR) for each contractor whose qualifying sales to the government exceeded \$40M during the contractor's preceding fiscal year. Qualifying sales are sales for which certified cost or pricing data were

required. A CIPR is required at least every two years for contractors who continue to meet these requirements. A more or less frequent cycle may be appropriate under certain circumstances, such as prior to a major contract award or subsequent to a merger or divestiture. DCMC is the designated organization responsible for performing the reviews, which are conducted by joint teams under the direction of a DCMC insurance and pension specialist. Normally, the joint team will include at least an actuary, cost accounting standard specialist, and the cognizant DCAA auditor. If major issues are encountered, an actuary from the DCMC Overhead Center may join the team. At the completion of the reviews, recommendations are made to the ACO, who is responsible for determining the reasonableness of the contractor's insurance and pension costs.

A CIPR represents a comprehensive and in-depth review of a contractor's insurance programs, pension plans, and other deferred compensation plans. The objective is to determine whether the contractor's plans are in compliance with the FAR and contract clauses, which may require a certain type of insurance with specific coverage. An analysis is made of the contractor's insurance expenses for employers liability, product liability, property and casualty, employee group, and workmen's compensation. The analysis of pension expenses includes employee savings and thrift plans as well as normal pension plans. Insurance and pension expenses are usually very large contributors to indirect expenses. At the present time, this is an area of very strong emphasis on the part of DCMC due to the increasing level of contract terminations, mergers, acquisitions, and consolidations ongoing as companies downsize. Of particular note are the issues involving pension expenses; they are not routinely encountered, can become very complex, and involve very large amounts of indirect costs.

Material Management and Accounting System Reviews

DFARS 242.72 requires that a large business contractor is subject to material management and accounting system (MMAS) disclosure, demonstration, and maintainability if in its preceding fiscal year the contractor received DoD prime contracts or subcontracts totaling \$70M. In addition, if this amount is \$30M or more and the ACO determines it to be in the best interest of the government (for example if significant MMAS problems are believed to exist), a review may be performed. The cognizant contract administration and audit activity jointly manage programs for evaluating material management and accounting systems. The ACO appoints a team leader and ensures the team includes appropriate functional specialists, such as an engineer, industrial specialist, property administrator, and auditor. The reviews are conducted every three years, but the ACO may lengthen or shorten this period based on a risk assessment of the contractor's past experience.

A contractor's MMAS sets forth the management controls for identifying requirements, initiating procurements, and maintaining materials necessary to support production operations. It also provides accounting information necessary for product costing and inventory pricing purposes. The personnel who are performing functions relating to materials management are often classified as indirect employees and these expenses are often major cost drivers of indirect costs. For example, contractor employees are engaged in expediting parts, controlling inventory, analyzing material problems, and warehousing. In addition, these reviews focus on many management issues that affect indirect costs, such as excess inventory, inventory shortages, rework, scrap, and returned material. Further, the accuracy of contract material charges (whether they are direct or indirect) are covered in these reviews.

Earned Value Management Systems

DOD Regulation 5000.2-R, Appendix VI, provides criteria for evaluating contractors earned value management systems (formerly referred to as cost and schedule control systems) on certain large, risky, cost-based weapon system contracts. Industry standards based on "best practices" have recently been developed for earned value management systems. As an initiative under acquisition reform, these standards have been accepted by the government as a replacement for the DoD cost schedule/control systems (CS/CS) criteria. Earned value management is a tool that allows both contractor and government program managers to have visibility into technical, cost, and schedule progress on complex projects. Essentially, it is an analytical technique providing for the earning of a budget value as each unit of work is completed under a contract. It is a primary function of program management that places strong emphasis on the planning and integration of technical, cost, and schedule aspects of a program to support decision making by program managers. Indirect cost management is an important part of this.

DoD applies the industry criteria via a contractual clause on contracts that have an estimated RDT&E cost of \$70M or more, or estimated procurement cost of \$300M or more. Below the mandatory thresholds, program managers may use less formal techniques consistent with anticipated risk. It should be noted that DoD sets minimum earned value management system requirements for firm-fixed-price contracts, time and material contracts, or contracts that consist mostly of level-of-effort-type work only on an exception basis. The primary output of the contractor's earned value management system is a monthly cost performance report (CPR), which identifies contract schedule and cost variances along with contractor comments on significant problem areas, reasons for variances,

and planned corrective actions. Typically, the monthly CPR for major weapons systems provides for the reporting of indirect expenses, with a requirement that the contractor analyze significant variances between budgeted and actual indirect rates. Most important, program managers want to identify as early as possible any negative cost or schedule changes that will affect the performance of their programs.

Today, most major defense contractors' earned value management systems have met government requirements. Over the past several years, contractors have completed a process of review, demonstration, and validation of their systems. For those few remaining contractors who do not have approved systems, the government performs an Initial Compliance Evaluation (ICE) to assess the contractor's proposed system against the industry standards. After approval, the government maintains surveillance to ensure continued satisfactory system operation. The DCMC carries out surveillance using a multifunctional team approach that combines production and manufacturing, engineering, quality assurance, and program support groups. Program management offices and DCAA provide support to DCMC as required. After the initial acceptance of the contractor's system, no further formal system evaluation reviews are conducted unless there is a serious need "for cause" determined by the government. If required, a post-acceptance review (PAR) would be performed but it would be tailored and limited in scope to address only specific issues, such as untimely cost data, inaccurate schedule data, or failure to address technical problems.

It should be noted that within six months of the award of a contract meeting the criteria discussed above, an Integrated Baseline Review (IBR) is conducted. This review is not a contractor systems-oriented review, but a formal review conducted by the government program manager and technical staff, jointly with their

contractor counterparts, to verify the technical content and the logical sequencing of the work to be performed for the Performance Measurement Baseline (PMB). An IBR is also performed when work on a production option of a development contract begins or, at the discretion of the program manager, when a major modification to an existing contract significantly changes the existing performance management baseline.

The industry standard contains some 32 specific criteria for an acceptable earned value management system. For analysis purposes, the standards have been broken out by nine business "process groups." One of the business processes is the "indirect management" process. This process group provides the following major requirements for contractor earned value systems that specifically relate to how the contractor manages indirect costs.

- The managerial positions responsible for establishing and controlling indirect budgets should be clearly identified in the contractor's organizational structure.
- The PMB should contain budgets for indirect costs at the level appropriate for project or company management.
- The projected indirect costs, contract work breakdown structure, and organizational levels should be established by a rational, traceable budgeting process.
- The contractor's disclosure statement should define the contractor's indirect management process. It should include a definition of indirect expenses, description of overhead pools, and items of cost assigned to each overhead pool.
- Projected indirect rates should be adjusted in a timely manner to reflect; (a) changes in the

current or projected base, (b) the level of overhead expenditures, and (c) the overhead structure. The Earned Value System (EVS) should use the most current overhead rates to establish the PMB.

- The contractor's accounting system should provide for the summarization of indirect costs from the point of allocation through the Contract Work Breakdown Structure (CWBS) and Organizational Breakdown Structure (OBS) to the total contract level.

- Overhead rates should be updated frequently enough to ensure a realistic monthly allocation of indirect costs without significant adjustments to performance measurement information.

- The evaluation of variances between indirect budgets and costs should initiate management action to correct the causes of the variances.

- Indirect variances should be identified by element of expense.

- To ensure that the most accurate rates are used for estimate at completion (EAC) purposes, the contractor's system should base these rates on: historical experience, contemplated management improvements, projected economic escalation, and anticipated business volume.

Government personnel working in the earned value management area obtain considerable knowledge about the efficiency with which the contractor performs many functions throughout his plant that are required to be integrated by program management. Many of these functions are classified as indirect by contractors and may be significant cost drivers of indirect costs. Therefore, a resulting additional benefit to government personnel evaluating earned value management is that an awareness is created of the necessity for the performance of

certain indirect functions and valuable insight is gained into the efficiency with which the indirect functions are being performed.

DCAA Operational Audits

The DCAA, as a separate agency under the direction and control of the DoD Comptroller, performs numerous functions relating to the monitoring of indirect costs. The placement under the organizational control of the DoD Comptroller provides an internal control measure for DoD management because of the separation of an independent audit advisory function from the acquisition management function. DCAA conducts all contract audits for DoD and provides accounting and financial advisory services for the negotiation and administration of contracts and subcontracts. Based on discussions with DCAA personnel, DCAA management has recently given executive emphasis to their operational auditing work. Operational audits are basically the same as the cost monitoring functional reviews conducted by DCMC. The purpose of an operational audit is to evaluate the economy and efficiency of specific contractor functions or operations. The audits may result in the identification of opportunities for cost reduction and may provide benefits for future forward pricing negotiations.

The DCAA's primary focus in selecting where to conduct operational audits is to monitor overhead cost control, particularly at the largest contractors. Risk assessments are performed prior to commencing the audits to ensure that significant cost savings potential is present. The DCAA has recently reported successful operational audits that resulted in significant reductions in indirect costs. The audits were in the areas of elimination of idle facilities and reduction in floor space through cancellation of leases, reduction in number of computer service centers, make-versus-buy analyses, cost containment measures regarding employee

health care and workmen's compensation costs, improvement in supplier rating systems, sharing of "best practices" with subcontractors and suppliers, and use of video conferencing in lieu of air travel. DCAA personnel report that they are getting increased cooperation from contractors by performing the operational audits in a constructive, noncritical, team-oriented manner. As an example, a recent joint DCAA/DCMC operational audit in the information systems area indicated that considerable savings of approximately \$6M could be achieved if certain work was performed by software vendors rather than by in-house personnel. After completion of the joint DCAA/ DCMC operations audit, the contractor performed a larger scale review and found that \$12.5M rather than \$6M could in fact be saved with further elimination, reduction, consolidation, and outsourcing of certain work.

DCAA Systems Reviews

In addition to the increased focus on overhead in performing operational audits, the DCAA performs as a normal part of its contract auditing function a number of pertinent contractor systems-oriented reviews. Although the specific objectives of the reviews are not to analyze the amount of indirect costs, the systems reviews are very relevant to the monitoring of indirect costs. For example, the reviews are oriented toward evaluating the effectiveness of large systems, such as electronic data processing, accounting, billing, etc., that are used for efficiently managing all work at contractor plants. These systems are usually uniquely designed by the contractor based on the nature of its business and the products it makes. In the process of performing these reviews, the DCAA must perform an evaluation of the effectiveness and efficiency of the performance of numerous functions. Any functions that are unnecessary, duplicative, or inefficient should surface. Since contractor management systems by their nature

relate to the total business, the people working in this area are primarily indirect or overhead personnel. Consequently, from the government's perspective, the performance of these reviews makes a very strong contribution toward the monitoring of indirect costs. For example, if the electronic processing or accounting functions are overstaffed, it should become apparent when the large-scale reviews are conducted.

It is DCAA's policy that each relevant accounting or management system that has a significant impact on government contract costs be reviewed on a cyclical basis. The frequency of the reviews is based on a risk assessment; however, generally they are conducted every two to four years. While the nature and extent of the audit effort depends upon contractor size, amount of government business, and risk assessment, the coverage normally includes the following contractor systems reviews.

Accounting System Reviews

Contractors receive various cost reimbursement and incentive contracts, which provide for payments based on costs or on a percentage or stage of completion. Therefore, they must establish and maintain an accounting system that provides assurance that cost accounting information is reliable and that the risk of misallocations and mischarges are minimized. Contractors' cost accounting systems should be committed to writing and should provide a complete description of all cost accounting practices affecting government contracts. The requirement for a disclosure statement, as explained in Chapter 7, should satisfy this requirement for those contractors covered by Cost Accounting Standards. Contractors should also have policies and procedures for ensuring that any changes made in cost accounting practices are properly disclosed to the government along with the related cost impact on government contracts.

In the performance of accounting system reviews, DCAA conducts numerous tests that tie in specifically with the monitoring of indirect costs. These tests cover an evaluation of the contractor's methods of:

- assigning costs as direct or indirect to cost objectives;
- ensuring that indirect costs are accumulated in logical, homogeneous cost pools;
- determining that allocation bases used by the contractor for the allocation of indirect costs are equitable;
- ensuring that items of the same nature as those charged as direct costs are not included in the indirect cost pools;
- evaluating the adequacy of functional or departmental breakdown of indirect expenses;
- ensuring that costs are properly classified as allowable or unallowable;
- ensuring that there is clear identification of personnel responsible for preparing and approving business transactions; and
- evaluating the currency of the system from a technological modernization perspective.

Electronic Data Processing System Reviews

The extensive use of computers and other electronic data processing (EDP) equipment by defense contractors requires that DCAA review from an internal control perspective the EDP organization, functions, and control procedures used throughout contractor's operations. EDP systems reviews are becoming more and more significant due to the increased use of computers, increased need for software, and constantly changing technology. EDP systems are major

cost drivers because of the very large costs associated with equipment, software, and personnel. In performing EDP system reviews, the DCAA becomes very familiar with the many functions performed and how effectively they are performed. For example, an EDP system review would include an evaluation of hardware acquisition, software development work, systems tests, computer operations, database administration, security, system maintenance, and usefulness of output information. The EDP systems review is of tremendous benefit in evaluating the reasonableness of contractor indirect costs, as these major costs are primarily indirect in nature. In fact, this has been an area of considerable importance in recent contractor actions to reduce overhead costs through the combining of computer center operations and the standardization of systems through adoption of best practices. In addition, a very fertile area for possible reduction in indirect costs is the analysis of the purchase of computer services from outside vendors versus in-house performance by contractor computer center personnel.

Contractor Budget And Planning System Reviews

DCAA's primary objective in conducting budget and planning system reviews is to establish that a sound budgetary system is operating for company planning and control purposes. The reviews are performed at least every three years for those contractors receiving DoD prime contracts or subcontracts of at least \$50M that required the submission of cost or pricing data. These reviews may also be considered at smaller contractor locations where there are indications of significant budgeting system problems. One would expect contractors to prepare budgets for all major activities within the contractor's plant that will have an impact on government contracts. A major consideration in performing these reviews is whether the reports to the government on major contracts for

weapon systems are consistent with the contractor's latest budgetary data used for internal management purposes. In addition to ensuring that managerial objectives are met, the contractor's budgetary system provides valuable data for use in developing estimates, particularly indirect cost projections and cost allocation base estimates.

Labor System Reviews

DoD weapons systems require a high degree of engineering and consequently labor is usually a very significant cost that is charged to defense contracts. In addition, direct labor is often used as the base for allocating indirect costs, particularly in engineering areas. Therefore, DCAA places considerable audit emphasis on the management controls exercised by contractors for ensuring that labor costs charged to DoD contracts are in compliance with cost accounting standards, generally accepted accounting principles, and contract terms. Usually, a defense contractor could expect to have the DCAA perform "floor checks" on a regular basis as a component of their internal control reviews. In addition to evaluating the adequacy of the contractor's labor recording system and assessing control risk relating to allocability and allowability of labor costs, the DCAA considers these reviews to be very important from an indirect cost monitoring standpoint. In the process of performing the reviews, the government personnel are on the production floor and continuously observing numerous contractor activities. The on-site observations can provide leads on questionable levels of indirect costs, such as idle personnel, equipment, or facilities. These areas would then be subject to examination in more detail with an operational audit.

Billing System Reviews

DCAA performs reviews of contractor billing systems in order to ensure that vouchers sub-

mitted by the contractor for payment under DoD contracts are prepared in accordance with applicable regulations, advanced agreements, and specific contract terms. Since it is not practical to audit billings other than on a test basis, the contractor should have controls in place for applying the proper indirect expense rates in the billings. If significant deviations occur between billing rates and rates that are actually being incurred during the year, adjustments should be promptly made to the billing rates. Systems should be in place to ensure that at year's end the amount of indirect costs reimbursed to the contractor is as close as possible to the actual allowable billing rates.

DoD Should-Cost Reviews

The concern for increased indirect costs due to the decline in defense business has resulted in DoD management actively pursuing the use of "should-cost" reviews as a means to help drive down contractor indirect costs. Should-cost reviews can be oriented toward achieving cost avoidances for both direct and indirect costs. Many government procurement personnel express the opinion that should-cost reviews have been found to be particularly beneficial when they were performed in conjunction with the evaluation and negotiation of major sole source proposals or major forward pricing rate proposals.

A should-cost review is a specialized form of cost analysis that is used to challenge a contractor's management and operating systems. Should-cost reviews do not assume the use of the contractor's existing workforce, methods, facilities, or management and operating systems. It represents a large-scale, penetrating, and in-depth analysis requiring a number of highly experienced government personnel. Historically, should-cost reviews have been primarily of two types: program or overhead should cost reviews. The program should-cost must be performed in certain circumstances

before the award of a major systems contract. These circumstances are: when a contract expected to exceed \$100M is to be awarded on a sole-source basis, there are future year production requirements for substantial quantities of like items, some initial production has already taken place, major changes in the system are unlikely, or the items being acquired have a history of increasing costs. On the other hand, overhead should-cost reviews are large-scale reviews focus on indirect costs relating to the contractor's entire operations rather than to a specific program. It includes an analysis of significant indirect cost drivers as well as the appropriateness of the various direct allocation bases for the indirect expenses. At the present time, DCMC considers the primary drivers of overhead to be indirect labor, fringe benefits, computer-associated costs, and facilities-related expenses. Considerable effort in overhead should-cost reviews is directed to an evaluation of the estimate of the contractor's total business base, including defense and commercial programs. The overhead should-cost analysis is intended to challenge the contractor's existing manpower, methods, facilities, and management control systems that are classified as indirect expenses. Consequently, it is essential that overhead should-cost reviews employ integrated teams of government engineering, contracting, contract administration, pricing, and auditing personnel from both local and regional DCMC and DCAA offices as well as personnel from DoD program offices. Because of the comprehensive nature of overhead should-cost reviews, staffing requirements have in some cases exceeded 50 team members.

Recent changes to the DFARS provide that the government should consider performing an overhead should cost review of a contractor's business segment when:

- projected annual sales to DoD exceed \$1 billion;

- projected DoD business exceeds 30% of the contractor's total business;
- the level of sole-source DoD contracts is high;
- a significant volume of proposal activity is expected;
- production or development of major weapons system or program is anticipated; and
- contractor cost reduction initiatives appear inadequate.

Generally, overhead should cost reviews are not performed more frequently than every three years.

Overhead should cost reviews are extremely unpopular with industry primarily because they specifically relate to indirect costs, which are often considered by management to be discretionary. In addition, the government often requests access to the contractor's total business operations, which includes commercial business as well as specific government programs or contracts. Overhead should cost reviews are also very resource-consuming for both the contractor and the government. The large amount of contractor data that is required to be provided to the government for overhead should-cost reviews is considered to be highly sensitive, proprietary information and must be closely protected from disclosure to unauthorized personnel.

One current primary objective of the DCMC is to strengthen its capabilities for monitoring indirect costs. Of particular importance is the strengthening of its ability to manage overhead should-cost reviews. Contractors selected as candidates for overhead should-cost reviews are based on recommendations received from several sources. DCMC practices provide for the prioritization of the overhead should-cost re-

views at contractor locations based on a risk assessment conducted with input from major buying activities as well as from local contract administration and audit personnel. A risk assessment is conducted for those contractors who have flexibly priced contracts with the government that in total are greater than \$100M. Many factors are considered in the risk assessment. In addition to the amount of business that is done with DoD on a flexibly priced basis, DCMC is also concerned with sales trends in order to target those contractors offering the greatest opportunity for significant cost reductions. DCMC also considers the volume of planned proposals—particularly those for development or production work. And DCMC criteria includes a consideration for the current status of the adequacy of contractors' management control systems. For example, certain systems such as the contractor's estimating system, purchasing system, earned value system, and accounting system may require government review and validation. Consideration is also given to the adequacy of the contractor's overhead cost reduction efforts and to what extent such contractor efforts are shared with the government. At the present time, due to the large amount of merger and acquisition activity in the defense industry, a significant factor considered by DCMC is whether or not the contractor has been involved in a recent major restructuring. If so, an overhead should-cost review could result in a duplication of effort as the government could be in the process of evaluating the contractor's cost savings plans resulting from restructuring activities.

Recent trends seem to be toward the concept of tailoring all should-cost reviews to the maximum extent to the specific concerns of the DCMC customer, the program offices, and buying commands. For example, the scope of a should-cost review could be only a specific product or specific indirect cost driver as opposed to a more encompassing program or to-

tal overhead cost review. The trend also seems to be toward the use of smaller government teams with a reduced number of more experienced people with strong backgrounds in analyzing indirect costs.

Correction Of Problems

The ACO is responsible for ensuring that contractors are responsive to recommendations made by government personnel in their indirect cost monitoring efforts, which are identified in cost monitoring reviews, operations audits, and overhead should-cost reviews. If the contractor should disagree with recommendations made by government personnel, they will respond in writing to the ACO with their rationale for disagreement. Otherwise, the contractor will submit a corrective action plan detailing the actions to be taken to correct any deficiencies or plans to reduce indirect costs. The ACO has tremendous clout in monitoring indirect costs; he could, in very serious situations, suspend progress payments or reimbursement of costs based on the estimated cost risk to the government. In addition, on a continuous basis, the ACO considers the status of all government monitoring efforts during the negotiation of indirect rates for forward pricing and billing rate purposes.

Program Office And DCMC Relationship

Program managers and their staffs cannot effectively manage the acquisition of a weapons system unless they understand their contractor's cost structure and stay abreast of the status of their contractor's total business. Program office personnel should to the maximum extent use the expertise available from the government cost monitoring staff who are very familiar with the contractor's operations. The ACO, who is a member of the DCMC, is designated as the single point of contact for the government at the contractor's plant. The ACO has the respon-

sibility of keeping the procurement contracting officer and program manager informed of the current status of indirect costs and any potential major problem areas that could affect cost performance.

The ACO should periodically brief program offices on the contractor's indirect cost control system, methods used by the government to monitor indirect costs, current status of actual indirect rates compared to forecasted rates, current status of forward pricing rate negotiations, current status of the settlement of prior year actual rates, the status of any contractor special projects to reduce indirect costs, organizational changes, business process changes, cost monitoring reviews, operations audits, and the current status of any major indirect cost issues (i.e., environmental costs, restructuring costs, executive compensation, health care benefits). In addition, the ACO should request input from the program offices as to any concerns that they may have about the contractor's indirect costs. These concerns should then be strongly considered in performing risk assessments and in making decisions on the areas that should be examined in more detail in conjunction with selecting cost monitoring reviews or operational audits. The briefings should also serve to emphasize to program managers the need for programmatic input regarding the contractor's forecasted business base. Program office personnel need to be sensitive to overhead issues and recognize when they should convey to the ACO certain information that could have a significant impact on indirect costs rates. The complexity of controlling indirect costs necessitates the sharing of information on a continuing basis between the program offices, DCMC, and DCAA as well as with contractors. One should never forget that the program manager is a major customer of the contractor and has tremendous clout in dealing with the contractor. The program manager should encourage their contractors to be very aggressive in managing

indirect costs. In this regard, some program managers have recently placed contractual in-

centives on the contractor's ability to control indirect costs.

SUMMARY

Indirect costs are applicable to the entire business base of the contractor and are to a great extent discretionary in nature. Issues that affect indirect or overhead costs present problems that reoccur each fiscal year. The contractor has the responsibility to manage these very significant costs. How the contractor classifies its costs—direct or indirect—is entirely up to it and are unique to the company. But the contractor is required to have a management control system in place to effectively manage these costs. Defense contractors have been very concerned about high overhead costs due to the declining business base and have undertaken special projects to address the problem. For competitive reasons, they have made large-scale efforts to reduce indirect and overhead costs.

The role of the government is to monitor rather than to manage indirect cost. Clearly, the government has the necessary capability in place to adequately monitor contractors' indirect costs. If the system works as it is designed to and all team members including the program offices perform their functions, the government program manager should not be surprised by any large financial impacts due to the application of indirect rates to the direct costs for his program. The developmental nature and tremendous risks involved in DoD work often dictate a need to perform the work on a contractual basis that is flexibly priced. Experiences with major programs (such as the recent A-12 aircraft program) have shown that significant problems often arise when attempts are made to perform the work on a fixed-price basis. When it is necessary to perform work on a negotiated basis, the government assumes greater risk and must work closely with contractors to ensure that indirect costs are aggressively controlled.