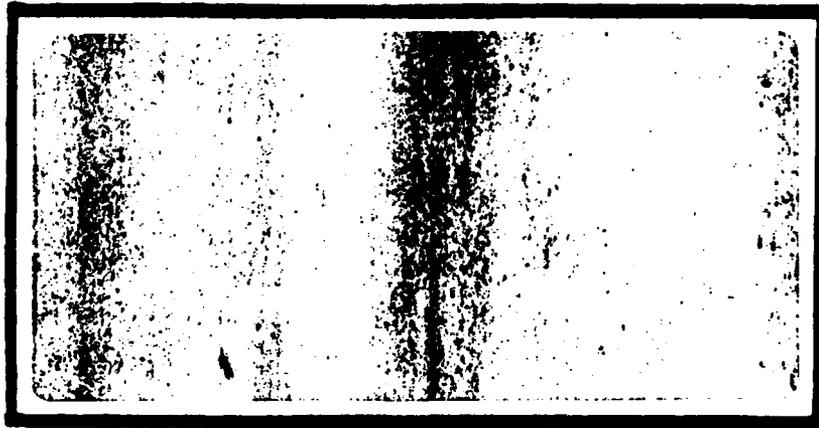


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Wright-Patterson Air Force Base, Ohio

AN ANALYSIS OF PROPOSED CHANGES TO
INCENTIVIZE FACILITIES CAPITAL
INVESTMENT THROUGH COST ACCOUNTING
STANDARD 409

Richard A. Augsburger, Captain, USAF
Dale R. Bauer, Captain, USAF

LSSR 62-82

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Amending/Repealing Cost Accounting Standard (CAS) 409 has been set forth by the DoD Acquisition Improvement Program (Initiative 5a) as a means to encourage investment to enhance productivity within the defense industry. Through interviews and published material the authors discovered positions of DoD, defense industry, defense industry associations and General Accounting Office. The predominant positions are: I) full use and a liberal interpretation of CAS 409; IIa) revise CAS 409 to eliminate the historical life requirement and return to the old ASPR 15-205.9 rule; IIb) delete CAS 409 and return to old ASPR 15-205.9; and III) revise CAS 409 to incorporate the ERTA lives. These positions were discussed with support and criticisms provided, a cash flow evaluation was performed and finally each of four predominant positions were analyzed as to; (1) Does the position meet the objectives of the Cost Accounting Standards?; (2) Does the position result in increased cash flow?; and (3) Will the position achieve the goal to enhance investment? As a result of the analysis the authors conclude that I should be adopted.

LSSR 62-82

AN ANALYSIS OF PROPOSED CHANGES TO
INCENTIVIZE FACILITIES CAPITAL INVESTMENT
THROUGH COST ACCOUNTING STANDARD 409

A Thesis

Presented to the Faculty of the School of Systems & Logistics
of the Air Force Institute of Technology

Air University

In Partial Fulfillment of the Requirements for the
Degree of Master of Science in Logistics Management

By

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September 1982

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This thesis, written by

Captain Richard A. Augsburg

and

Captain Dale R. Bauer

has been accepted by the undersigned on behalf of the faculty of the School of Systems and Logistics in partail fulfillment of the requirements for the degree of

MASTER OF SCIENCE IN LOGISTICS MANAGEMENT

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TABLE OF CONTENTS

	Page
LIST OF TABLES.	vi
CHAPTER	
1. INTRODUCTION	1
Introduction	1
Background of Cost Accounting Standards.	1
Cost Accounting Standards.	4
CAS 409: Depreciation of Tangible Capital Assets	5
The Department of Defense Acquisition Improvement Program Initiative Number 5.	7
Economic Recovery Tax Act (ERTA) of 1981	8
Thesis Problem Statement	10
Research Objectives.	10
2. LITERATURE SURVEY.	11
Introduction	11
General Accounting Office Study.	11
The Depreciation Standard.	13
Initial Draft.	13
First Exposure Draft	13
Second Exposure Draft.	15
The Standard	16
Congressional Hearings	17
Impacts.	18
Profit '76	19
Capital Asset Revaluation.	21

CHAPTER	Page
3. METHODOLOGY.	22
Methodology.	22
Data Collection.	23
Data Analysis.	23
4. DATA	25
Introduction	25
Department of Defense Positions.	25
Industry Positions	30
Industry Associations Positions.	39
General Accounting Office (GAO) Position	42
Position Summary	44
Major Positions.	45
5. DATA DISCUSSION AND ANALYSIS	47
Introduction	47
Major Positions.	47
Discussion	48
I) Provide Full Use of CAS 409 and Liberal Interpretation of the As- set Life Modification Provisions.	48
Support	50
Criticisms.	52
II) Revise/Delete CAS 409	54
Revise CAS 409.	54
Support	56
Criticisms.	57

CHAPTER	Page
Delete CAS 409.	59
Support	59
Criticisms.	60
III) Change CAS 409 to Incorporate the ERTA Lives.	61
Support	61
Criticisms.	61
Defense Contractor Cash Flows.	62
Analysis	68
I) Provide Full Use of CAS 409 and Liberal Interpretation of the As- set Life Modification Provisions.	68
IIa) Revise CAS 409.	69
IIb) Delete CAS 409.	70
III) Revise CAS 409 to Incorporate the ERTA Guidelines for Service Lives	70
6. CONCLUSIONS AND RECOMMENDATIONS.	73
Introduction	73
Findings	73
Conclusion	74
Recommendations.	75
SELECTED BIBLIOGRAPHY.	76
References Cited	77

LIST OF TABLES

Table		Page
1	Present Value (Cash Flows)	64
2	Percentage Improvements in Present Value (Cash Flows)	65
3	Analysis Summary	72

CHAPTER 1
INTRODUCTION

Introduction

The recent environment of rapid economic inflation and productivity stagnation has put pressure on both the government and the defense industry to discover a means of increasing cash flows, profitability and productivity. Recognizing the need for increased capital investment, which requires increased capital formation, and the problems in allocating such costs under defense contracts caused Mr. Frank Carlucci, Deputy Secretary of Defense, to recommend that CAS 409 become one of the vehicles used in incentivizing and costing facilities capitalization in defense contracting (6).

Background of Cost Accounting Standards

During the 1960s and early 1970s the escalating costs of the Vietnam conflict and major defense system acquisitions brought on the recurrence of the cyclical scrutiny of the defense budget and contractor profit margins. Previous attempts had been made by the government to limit and control defense contractor's costs and profits as early as 1934 with the recently repealed Vinson-Trammell Act. This act was designed to limit profits on aircraft and naval vessel

contracts. During World War II, the Treasury Department issued Treasury Decision 5000 concerning the subsidization costs of shipbuilding (23:13 to 18). These regulatory attempts were eventually replaced by passage of the Armed Services Procurement Act of 1947 and the Federal Property and Administration Services Act of 1949. The implementing directives of these two acts constitute what is currently known as the Defense Acquisition Regulation (DAR) and Federal Procurement Regulations (FPR). During the Korean War, the Defense Production Act of 1950 was passed granting the President authority to exercise controls related to defense production (18:iii). After conclusion of the war, the Act was modified and continued by biennial Congressional extension (31).

In 1968 Congress was involved with several issues concerning defense contracts. These issues included the high percentage of negotiated contracts, substantial cost overruns, concern over the flexibility of accounting methods, the importance of cost as reflected in establishing price based on historical cost and projected cost, difficulty in safeguarding against excess profits, and a lack of uniform cost accounting principles. This drove home the realization that contractors had great latitude in handling most of their reported costs. Regulations and agencies already existed that, in their own ways, touched on these issues. Generally Accepted Accounting Principles (GAAP) were primarily con-

cerned with financial reporting and inter-year cost allocation. These principles allowed considerable flexibility and were silent on questions relating to governmental procurement requirements. The Internal Revenue Service (IRS) concentrated on tax matters related to revenues and the deductibility of expenses. The Securities and Exchange Commission's (SEC) focus was on the financial condition of the corporation as a whole. Neither the SEC nor the IRS were concerned with reporting or tracking the condition of individual cost or profit centers. Furthermore, reliance on GAAP was used for the certification of financial reports submitted to the SEC. The Renegotiation Board investigated excessive profits on an overall annual basis rather than on the basis of individual contracts. Their attention was primarily focused on income, not on the underlying costs. DAR and the FPR provided only general guidance on cost accounting, with major references to GAAP or IRS regulations (11).

The IRS, SEC, and GAAP recognized and fulfilled the need for financial accounting standards. Private corporations recognized the need for internal cost center accounting or managerial accounting. Nothing existed to fill the government's special need for cost accounting standards necessary for accurate contract negotiation and administration. The government recognized this need for cost accounting principles similar to GAAP for use in government contracting. This in turn led to the review of the problem by the Senate

Banking and Currency Committees. Admiral Rickover, Director of Nuclear Propulsion, United States Navy, established himself as an outspoken proponent for cost accounting standards in defense contracting. Admiral Rickover used as the basis for his argument section 707 of Title VII of the Defense Production Act which reads:

No person shall discriminate against orders or contracts to which priorities are assigned or for which materials or facilities are allocated under any rule, regulations, or order issued thereunder, by charging higher prices or by imposing different terms and conditions for such order or contract than for other generally comparable orders or contracts or in any other manner [31].

Admiral Rickover argued that determining whether discrimination existed or not was an unenforceable rule due to the absence of uniform cost accounting standards. Congress amended the Defense Production Act and tasked the General Accounting Office (GAO) to study the feasibility of prescribing universal cost accounting standards (14). The GAO feasibility study concluded that uniform cost accounting standards were both feasible and desirable (10). On the basis of this study Congress passed Public Law 91-379 in August 1970 which created a board to promulgate uniform cost accounting standards applicable to negotiated defense contracts (33:3).

Cost Accounting Standards

Public Law (PL) 91-379 is the statutory basis for Cost

Accounting Standards (CAS). This law established the Cost Accounting Standards Board (CASB) as an independent agency of Congress (33:4). Section 719(g) of this law:

authorized the CASB to promulgate cost accounting standards designed to achieve uniformity and consistency in the cost accounting principles applied by defense contractors in the estimating, accumulating and reporting costs on defense contracts [33:5].

A Cost Accounting Standard is defined as:

A statement formally issued by the Cost Accounting Standards Board that (1) enunciates a principle or principles to be followed, (2) establishes practices to be applied, or (3) specifies criteria to be employed in selecting from alternative principles and practices in estimating, accumulating, and reporting costs of contracts subject to the rules of the Board. A Cost Accounting Standard may be stated in terms as general or as specific as the Cost Accounting Standards Board considers necessary to accomplish its purpose [33:25].

The CAS are not regulations which dictate the use of specific procedures or practices, but merely establish the principles or criteria which must form the basis for the cost accounting practices used (33:25). To date the CASB has promulgated 19 Cost Accounting Standards. (Public law requires CAS for all negotiated national defense contracts in excess of \$100,000.)

CAS 409: Depreciation of Tangible Capital Assets

The CASB determined that a depreciation standard was needed as depreciation charges had been based on income tax and financial reporting practices which do not ensure a reasonable representation of the cost of services provided on

government contracts (9:3365). This determination caused the promulgation of CAS 409, Depreciation of Tangible Capital Assets, which addresses the assignment of depreciation costs to accounting periods and the allocation of these costs to cost objectives (33:50).

The fundamental requirement of CAS 409 is that the depreciable cost of a tangible capital asset will:

- (i) constitute its capitalized cost less the estimated residual value;
- (ii) be assigned to accounting periods via a depreciation method that reflects the consumption of services over the life of the assets; and
- (iii) be spread over a service life that approximates the expected period of usefulness [33:50].

The depreciation cost of an asset may be charged either:

- (i) directly, if such charges are made on a usage base; or
- (ii) as part of the cost of the total organizational unit, provided that the total cost of the organizational unit is allocated to cost objectives based on a measurement of the services provided by the unit; or
- (iii) indirectly through appropriate indirect cost pools [33:50].

The Standard does not dictate or prohibit the use of any particular method of depreciation. The only requirement is that the method used must "reasonably reflect" the consumption pattern of the asset. Another requirement is that the service life of an asset be a "reasonable approximation" of its period of actual usefulness. The service life must be based on records of past retirement or withdrawal from active use of like assets. However,

historical records should only serve as a starting point for the determination of an assets service life. Other factors such as significant use of fully depreciated assets need to be taken into account (33:51 to 52). If assets are being used for a significant period of time beyond the point when they are fully depreciated, perhaps the depreciation schedule should be adjusted to account for the longer actual service lives. Perhaps some incentive that would lead contractors to acquire assets that improve their productivity should be established.

The Department of Defense Acquisition Improvement Program
Initiative Number 5

On April 30, 1981 the Deputy Secretary of Defense, Mr. Frank C. Carlucci issued a memorandum outlining a program to improve the DoD acquisition process. This memorandum set forth 31 "initiatives" (an additional item was added on July 27, 1981) for implementation by DoD (3:54). Initiative #5 of this program is to "Encourage Capital Investment to Enhance Productivity". This initiative states:

Productivity in the defense sector of the U.S. economy has been lagging, in large part because of low levels of capital investment compared to U.S. manufacturing in general. Cash flow problems, tax policy, high interest rates, and (low) return on investment (ROI) tend to limit available investment capital. The industry views low profits and program instability as precluding investment in capital equipment. This situation has two major implications: a tendency to shift from defense to commercial business, and a decrease in funds available for facilitization [6:5].

The thrust of this initiative is to encourage capital investment. Mr. Carlucci has directed several required actions to implement this initiative. The General Counsel of the Department of Defense is directed to support legislation to permit more rapid capital asset depreciation and to recognize replacement depreciation costs by amending or repealing CAS 409 (6:5). Allowing contractors to recoup their capital investments more rapidly through charging off depreciation costs against government contracts at a faster rate is seen as part of the solution leading to increased facilities capital investment, then higher productivity, and eventually to lower item costs as a result of the productivity gains.

Economic Recovery Tax Act (ERTA) of 1981

The Economic Recovery Tax Act of 1981, P.L. 97-34, was signed by the President on 13 August 1981. One of the ERTA provisions liberalizes the depreciation write-off for business. ERTA simplifies and speeds the process of capital cost recovery in the tax system. Under prior law the annual depreciation allowances were based on allowable rates of depreciation and the useful life of the asset. Prior law allowed, in addition to straight-line depreciation, various forms of accelerated depreciation. These forms allowed firms to deduct more of the asset's cost earlier in its life. Useful lives for different assets were specified in the tax

code. Firms could, however, elect the class life asset depreciation range (ADR) which enabled them to depreciate an asset over a life 20% greater or less than the life listed in the tax code (21:4 to 8).

The depreciation approach incorporated in ERTA is the "10-5-3" approach. Under this approach the useful life concept is abandoned and replaced by three categories of assets with the 10-5-3 referring to the tax lives of each category. The three categories are: business structures, machines and equipment, and cars and light duty trucks. An advantage of this approach is its simplification of depreciation. However, critics claim that while the initial Government revenue loss due to firms paying less income tax is moderate, substantial losses will result in the near future and that there is a possibility that investment will not be significantly stimulated (21:5). Allowing the business community to more rapidly depreciate equipment and lower their tax bills, without requiring capital investment towards increases in productivity, produces a corporate windfall. Investment only occurs when existing equipment is worn out or existing capacity or technology is not adequate to compete for anticipated sales. ERTA provides more money for reinvestment, but it does not provide the incentive for such investment. It is a passive tool and during times of a depressed economy, an active incentive is needed to break the cycle and spur outlays for productivity investments.

Thesis Problem Statement

Should CAS 409 be amended or deleted in order to increase facilities capital investment as advocated by the Department of Defense Acquisition Improvement Program?

Research Objectives

Mr. Carlucci has recommended that action be taken to change or delete CAS 409 in order to improve the defense industry productivity rate. This would help by tending to increase available investment capital leading to increased facilities investment, increased productivity (10:5), and lower costs per unit of production. This action requires the following intermediate steps in order to arrive at a solution:

1. Determine the current position of DoD, the GAO, and the defense industry regarding CAS 409 and changes to the standard.
2. Present each major position as determined by the authors.
3. Discuss each major position regarding support and criticisms.
4. Evaluate each major position regarding consistency with the objectives of Cost Accounting Standards and the DoD Acquisition Improvement Program Initiative 5.

CHAPTER 2

LITERATURE SURVEY

Introduction

This chapter will discuss the promulgation of Cost Accounting Standard 409. Recent concerns about this CAS and recent proposals for change/deletion will also be discussed.

General Accounting Office Study

Depreciation was identified as a major problem area in the GAO feasibility study mentioned in Chapter 1. The diversity of depreciation treatments used by defense contractors is highlighted by the following case cited in the study.

One major defense contractor used three different methods of depreciating facilities depending upon whether the data were being reported for corporate purposes, tax purposes, or contract costing. In the case of one building, the method employed for corporate purposes was 'sum-of-the-years-digits' over a 35-year life. The same 35-year life was used for tax purposes, except that 60% was written off over five years and 40% over the remaining 30 years. Only a 12½ year life was used for contract costing, 80% in the first five years and 20% on a straight line basis over 7½ years [10:98].

The GAO study produced as a by-product a valuable data base which would be available for subsequent use by the CASB. In addition to surveying contractor practices, the study attempted to obtain reactions to various proposed standards. The proposed standard used in the study read as follows:

The amount of depreciation charged to a cost center or cost objective ought to reflect the cost of asset service consumed. The method selected for computing depreciation should be that method which most closely approximates the actual consumption of asset service rather than one preferred for its tax or financial reporting considerations [10:227].

When queried considering the availability of criteria in determining depreciation for contract costing, 70% of the respondents acknowledge that criteria did exist for determining the depreciation method to apply. The criteria applied, though, was not chosen for its reflection of actual consumption of asset service life. The following observations were made:

- (1) Many companies utilized the maximum depreciation allowance, authorized by IRS guidelines, by the use of an accelerated method.
- (2) Another large segment used straight line depreciation.
- (3) Obsolescence and increased maintenance cost was considered a valid reason for the use of accelerated depreciation.
- (4) Problems existed in recovering the costs of special assets used for a given contract.
- (5) Facts other than cost analysis influenced the selection of depreciation methods.
- (6) Companies were not hesitant about setting criteria, though they differed from company to company [10:205-206].

Overall reaction to the standard by industry was primarily negative. Contractors with experience indicated that the standard was "too restrictive" while a minority without experience also stated that the standard was "too restrictive". This initial data was subsequently to be used in the preparation of a Cost Accounting Standard devoted to depreciation.

The Depreciation Standard

Initial Draft

Initial efforts of the CASB in reviewing the requirements of a depreciation standard closely paralleled the GAO process above (30:21-26). CASB staff work commenced in May of 1971, regarding the depreciation standard. Reviews were conducted of the Government Procurement Regulations dealing with depreciation; data was obtained from numerous accounting associations, including the National Association of Accountants (NAA) and American Institute of Certified Public Accountants (AICPA); and information from both the Treasury Department and the Internal Revenue Service was collected. In December of 1971, an Issue Paper was generated. Responses to the paper brought out issues that would remain dominant until the present (11). The Machinery and Allied Products Institute (MAPI) summarized these issues as follows:

- a. Depreciation policy with respect to allowability would consider only contract costing and pricing.
- b. Normal accounting records maintained by contractors would be replaced or augmented by new recordkeeping requirements for depreciation.
- c. A standard on depreciation might be counter to public policy incentives aimed at encouraging contractors to modernize their facilities.
- d. A standard on depreciation should also be consistent with the stated goal of encouraging contractors to own their own facilities.
- e. Defense profit policy and return on investment considerations should be consistent with depreciation policy [28].

First Exposure Draft

The CASB issued the first of two drafts on a proposed

Cost Accounting Standard, Depreciation of Tangible Capital Assets, on July 11, 1974. Industry response covered the following areas (4:A5-A7):

A. A large potential for protests would exist regarding the use of accelerated versus straight line depreciation methods based on government and industry differences of interpretation.

B. Industry felt that the standard did not take into consideration various economic considerations, including the declining value of the asset, inflation, increasing maintenance and replacement costs, changing market requirements, and the uncertainty associated with government contracting.

C. Contractors pointed out that the burden of proof in setting service lives would fall on them, along with the associated costs of recordkeeping. It was recommended that the Standard be modified to allow the use of IRS guideline lives for contract costing, without further justification or recordkeeping.

D. Industry recommended either eliminating the consideration for residual values, or minimizing the amount of required justification in establishing residual values.

E. Industry felt that the handling of gains and losses on the disposition of tangible assets was not a reflection of changing economic or market conditions and was as a result, inequitable to contractors.

The Department of Defense reiterated many of the same

concerns. Excessive recordkeeping and administration was a prime concern. The impact of restraining accelerated depreciation methods on the cash flows of contractors and the subsequent impacts on investment policies was raised. Investment in contractor-owned versus government-owned contractor operated facilities was regarded as being jeopardized. Reductions in the defense industrial base were predicted (26:41).

Second Exposure Draft

The major change to the proposed Standard was that:

The proposal published on June 11 relied in part on asset guideline class lives established by the Treasury Department. The Board, after carefully considering all the relevant issues and the advice it has received, has determined that asset service lives for contract costing purposes should be developed on the basis of the contractor's own actual previous experience with comparable assets in similar service. The Board has therefore modified its proposal in order to place the primary reliance on records of the age of assets at the time of disposal or withdrawal from active service. The Board recognizes that such records are not now in existence for all contractors. The basic data from which such analysis can be prepared, however, are generally available. The Board has determined that a reasonable working period should be provided in which contractors can prepare the appropriate analytical records [12:35678].

Again the responses from contractors centered on the requirement for extensive recordkeeping in order to support contractor claims for useful service lives. Removal of the option to use IRS Guidelines as an acceptable minimum in calculating service lives was strongly objected to. The remaining objections fell into the following areas (12:35678-35681):

A. Adoption of the IRS Asset Depreciation Range system was recommended. Deviation would be on an exception basis, requiring justification and substantial support. Reduced paperwork would be the direct benefit to the majority of contractors.

B. The precision that the Standard attempted to achieve was described as, at best, an estimate or guess of future service life not consistent with the use of extensive recordkeeping. Technological and economic obsolescence were issues that were not raised.

C. Conflict between the CASB and the national policy in the areas of promoting capital recovery and reinvestment in modern facilities was perceived as a critical issue. Shrinkage of the defense industrial base was used as an argument in that the Standard would act as a disincentive to capital investment.

The Defense Department position was the same as that voiced in the original response to the first draft. The DoD voiced opinions that paralleled those expressed by industry.

The Standard

The Standard as promulgated was essentially unchanged from the second exposure draft that was issued on 3 October 1974. With an effective date of 1 July 1975, the Standard would nevertheless not affect most contractors for at least three full years due to implementing instructions

(13:4259-4267). Passage of the Standard was accomplished with one dissenting vote from the total of five board members. Mr. Charles A. Dana, the industry representative on the CASB, prepared a sixteen-point statement of dissent (14:8688-8697). Mr. Dana noted the overwhelming dissent by industry, professional accounting firms, and the Department of Defense. Mr. Dana refers to inequities in service life estimates that are computed, by individual contractors, in accordance with the Standard which may result from the:

- (1) adequacy of financing,
- (2) varying levels of capacity,
- (3) management decision to increase subcontracting,
and
- (4) levels of government support with facilities
[14:8690].

The only support for the enactment of the Standard arose in the need for consistency and uniformity identified in the GAO study. Outside of the board members themselves there did not appear to be support for the chosen method of implementing a standard.

Congressional Hearings

Legislation establishing the CASB provides for, after publication of a CAS in the Federal Register, Congressional review and oversight of CAS promulgations. The CAS is transmitted to Congress concurrent with its publications. Unless the Congress, within 60 days of continuous session, passes a concurrent resolution that does not favor the proposed CAS, the CAS becomes law after 120 days elapse since

publication.

The strong concern expressed by industry resulted in both the Senate and the House of Representatives holding hearings on the Standard (32:16).

In response to the voiced concerns, and as a result of the Congressional hearings, DoD stated it was undertaking a study to evaluate profitability in defense business, with the goal of revising profit policy. Senator Alan Cranston, the Senate Committee Chairman, recommended the Board take prompt action to issue Cost Accounting Standards addressing inflation and the cost of capital (15). Chairman Staats of the CASB responded that Standards on inflation and cost of capital would be issued before any economic impact could be felt from CAS 409.

Impacts

The Council of Defense and Space Industry Associations (CODSIA), and the Aerospace Industries Association of America (AIA) both ran surveys on the perceived impacts of CAS 409. A significant majority of the members surveyed disagreed with the CASB statement regarding benefits that would result to the Government (9). The Association of Government Accountants (AGA) also ran its own survey. This time those surveyed were auditors or accountants employed by DoD, NASA, and ERDA (currently the Department of Energy). The results of this survey were diametrically opposed to those of the surveys run

by the industry associations (26:64).

Perhaps a reason for the inconclusive nature of the research was that all the surveys were taken prior to the expiration of the two-year phase-in that was effective until January of 1978. A later study done by LCDR J. C. Kline, SC, USN, at the Naval Postgraduate School in Monterey, Ca., finds the:

Standard has not significantly altered the depreciation accounting practice of industry... contractors have incurred significant costs in implementing the Standards" and "contractors and DoD's concerns over the possible disincentives to contractors' capital investment and the erosion of the industrial base have not been proved justified [26:119-120].

Profit '76

In May 1975 Deputy Secretary of Defense William P. Clements directed a study to determine the level of investment and profitability of defense contractors in relation to commercial contractors, and to develop any necessary changes in DoD profit policy. This study was performed due to DoD suspicions that the preceding years saw an erosion of the defense industrial base due in part to a low level of capital investment (2:iii).

During the study, an analysis of the interaction between facilities capital investment and return on sales, in addition to many other factors, was performed. This analysis showed that investment in commercial profit centers was approximately 3.7 times that of government profit centers.

Also, the return on sales for the commercial profit centers was about 3.6 times the return on sales for government profit centers. The analysis found that there was a correlation between the amount of investment a company is willing to make and the amount of profit the company can expect to receive. The sources of funding investment include depreciation. Depreciation is a "source of funds that is being reinvested." Corporate data indicated that defense contractors were investing an amount equal to annual depreciation. It was felt that due to inflation, defense contractors could not "stay even" if they invested money generated through depreciation. One of the study's conclusions was that increased return on sales will stimulate investment, which would increase productivity, which would lead to decreased costs (2:II-35 to 36).

As a result of the analysis performed under the study the following policy was proposed.

1. Recognize capital (facilities) as a real and essential ingredient of contract performance.
 - a. Uniformly compensate contractors for the time value of facilities capital employed at an imputed interest rate associated with a risk free investment...
 - b. Recognize that a special risk attaches to capital investments made for defense purposes. Provide contractors the opportunity to earn profit to compensate for that risk in the same general manner that they are given an opportunity to earn profit to compensate for the cost risks they assume [2:VII-3].

This policy was incorporated into Defense Procurement Circular #76-3, issued on 1 September 1976.

Capital Asset Revaluation

In August 1975 a study on "Compensation for Use of Capital Assets During Periods of Rapid Inflation: An Evaluation of Department of Defense Procedures Versus Current Commercial Practice" was released. During the recent past environment of rapid economic inflation, pressure has been placed on the DoD to allow deviation from historical cost allocation methodology in recognizing capital asset use (19:viii). Ninety-six of the top 100 DoD contractors and 100 firms randomly selected from the Fortune 500 were surveyed. The following conclusions were reached:

- A. There is a lack of capital asset use revaluation experience in the U.S. This lack of experience is both DoD and industry wide and complicates any attempt to "index" capital assets' values to come up with an accurate forecast of actual present value of the asset.
- B. The development of an adequate process of capital asset use revaluation is very important to both the U.S. as a whole and to the DoD.
- C. Replacement cost is highly desirable as a "Value Surrogate", and this use is feasible for DoD usage (19:214 to 220).

CHAPTER 3

METHODOLOGY

Methodology

Data will be collected from the Department of Defense, the General Accounting Office, and the Defense Industry. Individuals contacted for data and viewpoints will be those having a working understanding of the issues at question. The nature of the data search, since it is asking for possible solutions to increasing investment, dictates an open ended format in data collection. All possible solutions will be gathered. Personal interviews will be conducted by telephone to facilitate idea generation (8). Creativity and innovation will first be sought and then tempered with supporting logic for inclusion by the researchers in order to maintain potentially valid data for evaluation. Discussions will center about possible recommended changes to CAS 409 in order to increase facilitization.

Discussion and analysis will be conducted within a framework of the Carlucci objectives and the CAS objectives. The analysis will consider consistency with the objectives of the Cost Accounting Standards, the impact on contractor cash flows, and consistency with the DoD Acquisition Improvement Program initiative number five.

The final conclusions and research recommendations will

be directed towards providing a supportable course of action regarding increased capitalization for improved productivity.

Data Collection

In order to determine and analyze the various positions regarding increased capitalization, telephone interviews will be conducted with policy and staff level personnel. Interviews will be conducted toward an objective of researching and stimulating positions that can be analyzed and evaluated at a later date. These interviews will be initiated within the framework of the questions listed below.

1. What are the shortfalls of CAS 409?
2. What is your opinion of Carlucci initiative 5a, dealing with CAS 409?
3. What are the alternatives, their impacts and requirements?
4. Will repealing/amending CAS 409 result in increased investment? If not, why not?

Government publications, trade journals and other published material will also be researched to determine positions and to gather data regarding amending/repealing CAS 409.

Data Analysis

The authors will determine the major positions resulting from the interviews and information discovered during data

collection. Each major position will be presented along with support and criticisms. Each major position will also be analyzed within the following framework:

1. Does the position meet the objectives of the Cost Accounting Standards?
2. Will the position result in increased contractor cash flows?
3. Will the position achieve the goal of the DoD Acquisition Improvement Program to encourage investment to enhance productivity?

CHAPTER 4

DATA

Introduction

This Chapter sets forth the positions of DoD agencies, the defense industry, industry associations, and the GAO. Included in each position are the problems as seen by the interviewees and the reasons behind each position. Only written information supplied by industry sources, or published material is attributed. Certain interviewees requested anonymity, their wishes will be respected. Included at the end of this chapter is a summary of positions and a list of the major positions as determined by the authors.

Department of Defense Positions

As a result of the Carlucci initiative number 5, various DoD agencies have developed positions regarding CAS 409. Some positions are in the form of letters and others are reports written to support or dispute changing or deleting the Standard.

In a letter to Mr. Carlucci dated 9 October 81 the Commander, U.S. Army Material, Naval Material Command, and the Commanders of Air Force Logistics Command and Air Force Systems Command endorsed changing CAS 409 to "... encompass the provisions of ERTA (Economic Recovery Tax Act of 1981) to

the extent that they will assist in encouraging capital investment to enhance productivity ... [25]." The signatories support the ERTA and believe its accelerated depreciation schedules are consistent with initiative number 5, and that without changes to CAS 409 to "... permit accelerated depreciation as an allowable cost ... our long-term goal to motivate industry to improve capital investment and productivity will be severely hampered [25]."

This position, however is not accepted by the Defense Logistics Agency (DLA). While acknowledging that productivity needs improvement, DLA does not feel that changing CAS 409 is the way to encourage investment. In a letter to Deputy Undersecretary of Defense for Research and Engineering (Acquisition Management) William A. Long, DLA HQ stated that there are better ways to encourage capital investment. These ways are as follows:

1. Recognize additional profit elements,
2. Facilitize contractors to a greater extent (provide more government furnished property), and
3. Make changes to the capital investment incentives included in DAR 3-815.

DLA believes that making the above changes would provide better protection for the government than by changing CAS 409, and that by changing the Standard good cost accounting practices would be compromised. DLA also feels that changes increasing investment should be separated from tax incentives

since tax and cost accounting are different concepts (20).

Major Richard Wall, USAF, while a student at the Armed Forces Staff College prepared a report in which he examines the proposed changing of the Standard. Major Wall is a Certified Public Accountant and has served on the DoD Contract Finance Committee and the DoD Cost Accounting Standards Working Group. In his paper Major Wall examines the case for changing CAS 409 and counters with arguments for leaving it as it is. The two reasons given for the lack of investment are; the repressive, inadequate tax structure of the U.S. and the overly conservative position on depreciation taken by the CASB (34:5).

Industry has complained that the current taxation policies do not provide incentives for growth and that current tax benefits from accelerated depreciation are not sufficient to allow for reinvestment. The inadequate taxation policies have resulted in the U.S. being last among industrialized countries in new equipment investment as a percentage of gross national product. The countries with increased investment and productivity have provided taxation policies designed to stimulate investment (34:5 to 6). The ERTA provides for increased depreciation by using the 10-5-3 rule which is expected to increase capital investment.

Critics of CAS 409 have argued that the CASB has inhibited investment by adhering to old, outmoded accounting conventions of the Financial Accounting Standards Board

(FASB) (34:7). However, the FASB's Accounting Research Bulletin No. 33, indicates that depreciation is to be charged against financial operations over the most reasonable expectation of the asset's useful life and in a manner which best simulates the expected pattern of consumption (34:4) (CAS 409 therefore seems to be in agreement with the FASB). Another criticism of the CASB is that critics have an impression that the Standard requires use of straight-line depreciation without regard to the impact of inflation on replacement costs. Replacement cost depreciation adjusts the annual depreciation charges upward through an index to compensate for inflation incurred during the year (34:7 to 8).

Major Wall feels the tax laws should be revised; however, he does not feel that CAS 409 should be changed. He points out that critics have failed to furnish substantial evidence of a direct cause-effect relationship between low capital investment and CAS 409 (34:8 to 9).

Major Wall lists several fallacies in the argument to change/repeal CAS 409. CAS 409 does not require the use of straight-line depreciation. In fact, most defense firms use accelerated depreciation for pricing defense contracts. Another fallacy is the impression that the accounting agencies have not considered the problems caused by high inflation. The FASB has often considered using replacement cost depreciation, however they have found that the problems of continually determining the changing market value of

assets would be prohibitive and would decrease the objectivity provided by using historical cost depreciation (based on the purchase price). Also, an indexing method has yet to be developed which would guarantee consistent and fair application of replacement cost depreciation throughout the defense industry. The CASB has also considered indexing and in 1975 proposed CAS 413, Adjustment of Historical Costs for Inflation. The Standard was not issued due to the problems in developing a satisfactory indexing method and the difficulty in measuring inflation among classes of assets (34:9 to 10).

Due to the above problems the CASB promulgated CAS 414, Cost of Money as an Element of the Cost of Facilities Capital, which provides some relief from inflation. Under CAS 414, "... contractors are annually reimbursed an amount equal to an asset's average undepreciated balance multiplied by the Treasury rate published by the Secretary of the Treasury [34:10]." This method was selected because the CASB found a strong correlation between interest rates and rates of inflation. It was also believed to be simpler to administer. Combined with the funds provided by depreciation under CAS 409, the money received by contractors for cost of money provides nearly the same total result as would be obtained if the assets were fully depreciated in its first year. Any changes to provide relief for inflation would also require changes to CAS 414. Although changing the Standard would

increase reimbursements for depreciation, the increases would be offset through reduced payments under CAS 414 (34:10 to 11). Therefore, "... it is doubtful that contractors would be more willing to make capital investments if the depreciation regulations of the CAS Board were modified as proposed [34:11]."

As a result of his research Major Wall has developed the following recommendations:

- a. DoD's profit policy should be restructured to give more profit to those contractors who actually make capital investments that will be used in the performance of defense contracts. The profit increment should be tangible and visible so that there is a direct relationship between reward and investment.
- b. DoD should adopt a cost accounting policy which ensures that contractors are not being forced by government auditors and contracting offices into using straight-line depreciation through an overly narrow interpretation of CAS 409. Greater leeway should be given to defense contractors who may want to use generally accepted methods of accelerated depreciation.
- c. Greater use of loans which are provided for under Title III of the Defense Production Act by the defense industry should be encouraged. Funds should be made more available so that contractors can receive loans to make the capital investments needed to modernize the defense industry [34:12 to 13].

Industry Positions

During the course of the research the authors received information from eight of the top 14 defense contractors for 1981 (5:D1 to D13). The following sets forth the positions of the firms and/or their representatives.

The first position to be discussed is not that of a

firm, but of an individual, Mr. Charles Dana. Mr. Dana is employed by Raytheon, but speaks out on his issue as a private citizen and former industry representative on the CASB. Mr. Dana was a member of the CASB when CAS 409 was promulgated and opposed it. His opposition has continued to his day and he would still like to see CAS 409 changed.

Mr. Dana feels that CAS 409 was and is:

... a poorly conceived Standard from the cost accounting aspect... because it mandates bad cost accounting, [and is] contrary to national policy on capital formation... [6:1].

Mr. Dana states that:

- CAS 409... requires that future service potential (which is what CAS 409 should be all about) should be based on past retention lives... not economic lives but retention lives - of assets already disposed of... Service potential - forecasts of which have been beyond the grasp of accountants, managers, engineers, and economists for a generation - is equated by CAS 409 to how long the contractor retained... his tangible capital assets up to the point of disposition [16:2].

Mr. Dana indicates that few contractors have developed records to indicate when an asset is placed in standby or incidental usage. This is permitted under the Standard and would reduce the service life of current assets (16:2). Mr. Dana feels that the standby/incidental use provisions are not utilized to a greater degree due to the feeling of shop foremen that they would lose the asset. The majority of foremen retain equipment as full use assets because they need the items for peak load work and fear not being able to get the piece of equipment back from higher management when

needed. The foremen feel they have better flexibility and are more responsive if they retain the equipment. Another reason for the lack of usage is the additional record keeping burden. Again, most foremen do not like the added work and thus do not keep accurate records of equipment on a standby/incidental use basis (16).

Mr. Dana's main objection to the Standard is that "... historical retention lives may be the most unfair and unscientific method of establishing future 'service potential' [16:2]." Mr. Dana would like the historical life requirement eliminated and replaced with the old ASPR 15-205.9 rule (16). This rule stated:

Useful lives - i.e., the allowable write-off period - shall be the greater of the lives used by the contractor (1) in his books of account and financial statements or (2) in his Federal income tax return [16:3].

This rule is based on the concepts of:

- (1) deciding the appropriate charge to current earnings,
- (2) forecasting the economic life of the assets, and
- (3) achieving the acceptability of public auditors.

Mr. Dana believes that many defense contractors consider this rule to be better cost accounting than CAS 409 (16:3).

Mr. Dana further believes that CAS 409 can be changed without considering changes to CAS 414. He feels that CAS 409 and CAS 414 are independent of each other. Mr. Dana states that the CASB denied in their prefatory comments to CAS 414 that:

[The] issuance of CAS 409 caused the need for recognition of this element of cost of facilities capital... [and that DPC 76-3]... provides that the increase in costs caused by CAS 414 should be offset in the establishment of the negotiated profit or fee on the contract [16:4].

Finally, Mr. Dana does not believe that his suggested revision will cause a substantial cost increase to the Government. Any change in service lives, changes only the time period, not the amount of reimbursed contract cost. He feels that the adoption of the old ASPR 15-205.9 rule would only accelerate the recovery of depreciation costs for firms who have been forced to adopt service lives longer than those used for book and financial accounting purposes (16:4).

Mr. Charles P. Koester, Assistant Comptroller, The Boeing Company is not convinced that CAS 409 needs changing. He indicates that paragraph 409.50 (a) (5) of the Standard provides that:

The contracting parties may agree on the estimated service life of individual tangible capital asset where the unique purpose for which the equipment was acquired or other special circumstances warrant a shorter estimated service life than the life determined in accordance with the other provisions of this paragraph 409.50 (e) and where the shorter life can be reasonably predicted (emphasis added) [27:1 to 2].

Mr. Koester feels that DoD can increase the amount of depreciation allowed in order to motivate contractor investments through an amendment to DAR 15-205.9 that would shorten the period of time over which the assets are depreciated, and that DoD can be responsive to Carlucci Initiative No. 5 by the revision stated above and still be in

compliance with CAS 409 through a "... liberal, sophisticated interpretation..." of CAS 409.50 (e) (5) (27:2). However, he feels that if CAS 409 must be changed Mr. Dana's position should be the basis for the changes.

With regard to CAS 414, Mr. Koester states that CAS 414 is totally independent of CAS 409 and repeats Mr. Dana's comments on the subject. He therefore does not see a need to include CAS 414 in the discussions regarding CAS 409.

In a telephone interview a representative of Lockheed Aircraft Corporation indicated that revising/deleting CAS 409 is an essential part in the fulfillment of Carlucci Initiative No. 5. He stated that under the Standard, firms can't recover the depreciation costs of an investment, which stops them from recovering the cost of the investment. He further stated that the Standard has lengthened asset lives for the purpose of depreciation. Lockheed tends to keep assets for a long period of time in case they are needed (the standby/incidental use provisions are not used). The assets are generally fully depreciated and the reliance on historical retention lives gives new investments a longer life than would normally be assigned by the company. The only change he feels is needed to the Standard is deletion of the requirement that asset lives be based on historical data. However, he does not have a recommendation for a specific replacement method.

The representative agrees that investment and therefore

productivity needs to be increased but comments that Lockheed updates equipment to produce new products, not just to increase productivity. They do not invest for investment's sake.

In an interview with a representative of United Technology Corporation, the representative indicated he would like to see CAS 409 changed. He would like the Standard to go back to the old ASPR 15-205.9 rule of using either accounting lives or tax lives. He feels that relying on historical lives is a mistake.

His opinion is based on the fact that during the 1960s and 70s the aerospace industry in the U.S. kept assets too long and that the industry generally used the IRS lives for depreciation (8 years). The result of this is that the U.S. plant and equipment is old. He and others feel that this was a mistake on industry's part. This is his main objection to CAS 409. He feels that requiring the use of historical lives, which were a mistake, would perpetuate the mistake.

He recognizes that the Standard does allow for modifying the historical lives of new assets to reflect changes in future usage. However, he feels that these changes are not made due to the future being a guess, and because government auditors want objective evidence to indicate changed usage.

With regard to increasing investment he considers CAS 409 to be a serious and potential threat to future investments. As the Standard currently exists it is a

disincentive to invest and will remain so unless the historical life requirement is eliminated. However, depreciation is not the only factor in the decision to invest. Other factors include; how quickly can it be tax deducted, how fast the price can be recovered and the status of your equipment versus your competitors.

Changing CAS 409 he believes, would be one incentive to invest. Many other incentives are needed before industry will invest. Changes to CAS 409 alone will not result in increased investment in his opinion.

During discussions with a representative of Hughes Aircraft Corporation, the representative indicated that he feels that CAS 409 should be repealed. He would like to see a return to the old ASPR 15-205.9 rule even though Hughes has not had the record keeping problems (indicating standby/incidental usage versus in full use) that other firms have had due to the nature of their business (primarily electronics oriented).

This representative forwarded to the authors a paper which sets out a case for repealing CAS 409. The premise is that the representative agrees with the paper so therefore the information contained therein will be presented.

The paper states that CAS 409 has created two problems: (1) burdens contractors with additional record keeping to support longer asset lives, and (2) by requiring long write-off periods, CAS 409 has harmful financial

consequences. It is a disincentive for acquiring new capital assets or replacing old, inefficient facilities.

In order to support asset lives the Standard requires that:

(1) Records be maintained of asset retirements. This information would not normally be maintained.

(2) Records must be maintained on assets withdrawn from active use. This data was not maintained prior to the Standard and is not easily developed. The Government and industry have difficulty in agreeing as to when an asset is no longer in active use. CAS 409 placed pressure on firms to produce standby/incidental use records, since the use of the total asset retention period significantly extends the asset write-off period beyond the useful life of the asset.

(3) Support must be provided for anticipated future use patterns. In order to determine these patterns, predictions of future usage must be made (7:2 to 3).

The paper indicates that auditing of these records is difficult and that contract administration is even more so. Companies and government auditors often have disagreements over this issue. This serves to create hard feelings on both parts and makes the job more difficult.

The financial consequences of CAS 409 are (1) companies have not invested in new equipment, (2) reliance on old equipment, and (3) increased costs and reduced competition. The Standard discourages investment by slowing the cash flow

and reducing the return on investment in fixed assets. The Standard may reduce depreciation costs on current contracts, but it fosters retention of old, inefficient production facilities which tends to increase costs.

Inflation is also a problem with the Standard. The Standard requires that the depreciation cost be based on the original cost of the asset. This does not provide sufficient funds to reinvest in new assets, which have a higher acquisition cost due to inflation, necessary to maintain the same production level (7:4 to 6).

Due to the above stated problems, the paper recommends that CAS 409 be repealed, but does not offer a suggested replacement.

A representative for General Electric Corporation indicated that he would prefer to use book lives (financial accounting) for contracting purposes. He does not like having three different methods of accounting for depreciation (tax accounting, financial accounting and CAS 409). The Standard is viewed as discouraging investments. However, he does not see additional investment as a result of changes to CAS 409. Deletion of the historical life requirement would be viewed as a step in the right direction.

He stated that the decision to invest takes more into consideration than just the rate at which the asset can be depreciated. Among the other things considered are the profit margin, the amount of unallowable costs being incurred

and the uncertainty of DoD work. The investment decision is the sum total of all factors. Before investment will occur conditions to encourage investments must be created.

In discussions with McDonnell Douglas Corporation, a representative indicated that he would like to see CAS 409 changed to include provisions to protect firms for the undepreciated costs of assets purchased for a specific contract after the end of the contract. He also stated that an individual firm will not invest any more than their competition and that each firm has its own "strategic" plan for investment. This plan is developed based on sales forecasts, future equipment needs and the competition. He does not feel that changes to CAS 409 will change this plan.

Industry Associations Positions

During the research the authors examined the positions of two prominent aerospace industry associations. The following sets out the positions discovered.

During November 1979 the CASB held an evaluation conference of the Cost Accounting Standards in effect. AIA urged precision of the Standard due to the problems with it (9:10,742 to 10,743). The Aerospace Industries Association (AIA) presented the following problems with CAS 409:

One common theme surrounds the implementation of this Standard - the requirement for developing and maintaining records and data, and making continuous studies. We strongly feel that this voluminous, extensive and costly effort cannot be justified on the basis of any assumed or asserted benefit to any

program, agency or other entity. When this Standard was promulgated the Board acknowledged additional costs would be incurred to implement this Standard, which were warranted by the likelihood of improved measurement of depreciation costs. We have no information that would indicate such a result has been achieved in any degree.

Implementation problems reported to us include:

- Refusal of Government to accept accelerated depreciation methods.

- Disagreement as to whether asset lives based on historical experience may be modified to reflect judgement as to future lives of currently acquired assets.

- Use of residual values developed as part of the results of the study of past experience.

- Develop and maintain additional data systems to track and record assets in standby and incidental use condition.

Given the dynamic nature of the economy and effects on business, we foresee no lessening of the unnecessary and useless controversy that this Standard has generated.

From information, comments, and opinions we have received, we conclude that:

- The Standard has generated a significant amount of unnecessary effort, paperwork, controversy and cost.

- There has not been a material change in the service lives used as a basis for depreciation charges as a result of the implementation of this Standard.

- The Standard has not resulted in more equitable allocation of depreciation charges among customers.

- Although industry expected a significant negative effect on cash flow, this result has not materialized in any overall fashion.

- The Standard is still a disincentive to investment because of the uncertainty surrounding the lives that can be established for newly acquired assets; therefore, it is still inconsistent with national

policy and initiatives to encourage investment [9:10,743 to 10,744].

Also during this conference the Council of Defense and Space Industry Association (CODSIA) was asked by the CASB to submit comments and recommendations concerning CAS 409.

Their recommendations were as follows:

(1) Reduce the amount of record keeping and administration required.

(2) Revise the Standard to eliminate the need for adjustment for gains and losses realized on disposition of assets.

Comments submitted were:

(1) The principal problems with the Standard are the many factors to be considered in establishing service lives and depreciation methods and the record keeping requirements.

(2) The only depreciation methods needed are the GAAP used for financial statement purposes, and many of the detailed requirements of the Standard could be eliminated.

(3) Inflation causes gains to be realized on disposition of assets which works for the government at the expense of the contractor's ability to replace capital assets (9:10,811 to 10,812).

To the best of the authors' knowledge none of the industry associations have as yet formulated a position concerning CAS 409 and Carlucci Initiative No. 5. The

associations are now in the process of formulating their positions. The authors feel that the above comments will be the basis for their positions.

General Accounting Office (GAO) Position

In a white paper concerning CAS 409 the GAO takes the position that to repeal CAS 409 would abandon "... the rational cost accounting concept for computing depreciation costs in Government contracting [24:3]." GAO states that if the Standard is repealed depreciation would no longer reflect "expected consumption of services", but would become an arbitrary figure designed to provide economic incentives for increased contractor investment. GAO feels that this should be avoided (24:3). GAO feels that an analysis of the underlying factors that have an effect on the investment issue and an overall solution together with a set of recommendations should be studied. The GAO indicates that there are three problem areas that need to be considered. These are:

- (1) The rate of return required to ensure that investment projects initiated by defense industries are competitive with other investment opportunities must be determined. Consideration must be given to the risk associated with different investment projects and the existing or anticipated tax rates.

- (2) Once an approach to determine the appropriate rate

of return has been established, the various ways of ensuring that rate must be examined. The GAO feels that the rate of return can most satisfactorily be attained by allocation of an appropriate weight to the investment factor in profit computation or modification of the CAS 414 cost of money rate. Either way would segregate and identify return on invested capital as a component of total acquisition cost, but would not distort cost accounting data. Increasing the rate of return could also be attained by changing CAS 409 so that depreciation no longer reflects "expected consumption of services". This, however, would spread the amount of investment incentive in an indiscriminate manner. This method does not allow for a distinction between the pressing needs for specific investment in manufacturing facilities and other less needed general investment projects. Adoption of arbitrary depreciation figures would make the annual depreciation costs and the recorded net book value of depreciable assets totally meaningless figures which could not be readily related to the original cost of assets. Further, if arbitrary lives are used the question of gain on disposal of (fully depreciated) assets must be dealt with. If CAS 409 is repealed it is possible that recurring resales of assets could take place with consequently repetitive depreciation computations made which could result in "double-charging" to government contracts.

(3) Once the appropriate rate of return has been

incorporated into the acquisition system, it must be ensured other factors do not impede the making of additional investments. Additionally, some method should be developed and incorporated into the acquisition process to ensure that industry does make the needed investments once the increased rate of return has been made available (22:4 to 6).

GAO feels that CAS 414 and DoD's Profit '76 policy were linked to CAS 409 and together were intended to provide the incentives being sought by industry for capital investments. Therefore, GAO opposes repealing or amending CAS 409 without considering amending or repealing CAS 414 and DoD Profit '76 (24:6).

Position Summary

Presented below is a summary of the positions set out in detail above.

Department of Defense

Military Commanders - Change CAS 409 to encompass ERTA

Defense Logistics Agency - Do not change CAS 409.
- Other ways to encourage investment.

Major Wall - Do not change CAS 409.
- Restructure DoD profit policy.
- Do not force use of straight line depreciation.
- Greater use of Defense Production Act Title III loans.
- CAS 409 and CAS 414 tied together.

Industry

Charles Dana - Change CAS 409
- Eliminate historical life requirement.

- Incorporate old ASPR 15-205.9 rule.
- CAS 409 and CAS 414 are independent.

Charles Koester (Boeing) - Do not change CAS 409.
 - Supports a liberal, sophisticated interpretation of current provisions.
 - CAS 409 and CAS 414 are independent.

Lockheed - Change CAS 409.
 - Delete historical life requirement.
 - No suggested replacement.

United Technology - Change CAS 409.
 - Incorporate old ASPR 15-205.9 rule.

Hughes - Repeal CAS 409.
 - Return to old ASPR 15-205.9 requirements.

General Electric - Change CAS 409.
 - Delete historical life requirement.
 - Use financial accounting lives.

McDonnell Douglas - Change CAS 409.
 - Protect firms for the undepreciated costs of assets purchased for a specific contract.

Industry Associations

AIA - Rescind CAS 409.

CODSIA - Change CAS 409.
 - Reduce paperwork.
 - Eliminate the need for adjustments for gains and losses realized on disposition of assets.

General Accounting Office - Do not change CAS 409.
 - The rate of return required to get firms to invest must be determined and implemented.
 - CAS 414 and DoD Profit Policy must be considered.

Major Positions

The predominant positions are:

- I) Provide full use of CAS 409 and liberal interpretation of the asset life modification provisions.

- IIa) Revise CAS 409 to eliminate the historical life requirement and substitute the old ASPR 15-205.9 rule in its place.
- IIb) Repeal CAS 409 and return to the old ASPR 15-205.9 requirements.
- III) Revise CAS 409 to incorporate the ERTA guidelines for asset lives.

CHAPTER 5

DATA DISCUSSION AND ANALYSIS

Introduction

This chapter consists of discussion and analysis of the major positions as determined in the previous chapter. Each position will be presented with support and criticisms. A cash flow evaluation will be performed using present value techniques, with various discount rates and various asset lives. Finally an analysis of each position will be performed considering consistency with the objectives of the Cost Accounting Standards and the DoD Acquisition Improvement Program. The information presented will be derived from the information contained in Chapter 4.

Major Positions

The positions that will be discussed and analyzed in this chapter are listed below. The positions are the predominant positions revealed by the research.

- I) Provide full use of CAS 409 and liberal interpretation of the asset life modification provisions.
- IIa) Revise CAS 409 to eliminate the historical life requirement and substitute the old ASPR 15-205.9 rule in its place.
- IIb) Repeal CAS 409 and return to the old ASPR 15-205.9 requirements.

III) Revise CAS 409 to incorporate the ERTA guidelines for asset lives.

Discussion

In this portion of the chapter the four major positions previously identified will be discussed. Each position will be presented and support and criticisms of each position will be presented. The information and arguments presented below are derived from the research (data presented in Chapter 4).

I) Provide Full Use of CAS 409 and Liberal Interpretation of the Asset Life Modification Provisions.

This position advocates leaving the Standard as it currently exists, but making full use of its provisions and allowing a more liberal interpretation of the provisions for changing asset lives. The basic reasons underlying this position are that there are better ways to encourage capital investment, to change or repeal the Standard would abandon the "rational cost accounting concept" employed in the Standard, and full utilization and a more liberal interpretation of the Standard could accomplish the desired results.

A review of the Standard is in order. The Standard provides that the depreciation method used must:

- (1) Reflect the pattern of consumption of services over the life of the asset.
- (2) Be the one used for financial accounting unless

that method does not reasonably reflect the consumption of the services or is unacceptable for Federal income tax purposes.

- a) Accelerated depreciation should be used when expected consumption of services is significantly greater during the early years of life.
- b) Straight line depreciation should be used when expected consumption is reasonably level over the life of the asset [9:3365].

Under the Standard, depreciation is charged during the period of estimated usefulness of the asset. This involves estimating the service life and the likely pattern of consumption (9:3365 to 3366). The Standard defines service life as:

The period of usefulness of a tangible capital asset (or group of assets) to its current owner. The period may be expressed in units of time or output. The estimated service life of a tangible capital asset (or group of assets) is a current forecast of its service life and is the period over which depreciation cost is to be assigned [9:5503].

The expected actual periods of usefulness must be supported by records of past retirement or withdrawal from active use of similar assets. Past experience can be modified to reflect changes in expected physical usage, i.e., changes in the quantity and quality of output, and changes in expected economic output, i.e., technical or economic obsolescence (9:3366).

Support

- (1) Maintains good cost accounting practices.

Horngren in his book on cost accounting, defines cost accounting as:

[The] ways of accumulating historical costs and tracing them to units of output and to departments, primarily for purposes of providing the inventory valuations used in balance sheets and income statements [22:4].

This definition indicates a reliance on historical costs to value the inventory produced. The CAS 409 standard attempts this by using historical data to determine the lives and consumption pattern of new assets.

- (2) Bases the future on the past. The Standard provides that the estimated service life of an asset shall be the reasonable approximation of the expected actual periods of usefulness. The expected actual period of usefulness is the period which is supported by records of either past retirement or withdrawal from active use for like assets used in similar circumstances (9:5504). The reliance on the past usage is necessary because the estimated useful service life is basically a forecast of the expected service life of a new asset. By definition, forecasting is "... the predicting of future values of a variable(s) based on historical values of the same or other variable(s) [29:605]."

However, the service life of the "like" assets is not the only variable in determining the estimated service life of a new asset. While the estimates use the past history as

a starting point the Standard allows for modification of this history for specific factors. The factors are:

- (i) Changes in expected physical usefulness from that which has been experienced such as; changes in the quantity and quality of expected output.
- (ii) Changes in expected economic usefulness; such as changes in expected technical or economic obsolescence of the asset (or group of assets) or of the product or service produced [9:5504].

(3) Maintains uniformity and consistency. The Cost Accounting Standards are designed to achieve uniformity and consistency in the cost accounting principles applied to defense contractors (33:5). By requiring each defense contractor to use the same guidelines for calculating depreciation the goal is realized.

(4) Does not comingle cost accounting and incentives. As shown above, cost accounting is the use of historical costs to determine the value of the inventory. According to Webster an incentive is: "Something that incites or has a tendency to entice to determination or action; something (as fear or hope of reward) that constitutes a motive or spur [35]." Clearly, by definition the two concepts are not the same.

(5) Service lives have not materially changed from those used before CAS 409. This information was provided to the CASB by AIA (9:10,743). If this is the case, industry was keeping assets longer and using longer service lives before the Standard went into affect. This disputes the argument that CAS 409 has caused longer asset lives.

(6) No significant negative impact on cash flow as a

result of CAS 409. This information was also provided to the CASB by AIA (2:10,744). If CAS 409 had significantly lengthened service lives the amount of depreciation expense chargeable during each accounting period would have decreased with a corresponding decrease in cash flow. This apparently did not occur.

(7) Full utilization and a liberal interpretation of the Standard can accomplish the desired results. As shown above, the Standard includes provision for estimating future service lives and for modifying service lives. The authors were given the impression during the research that the contractors do not use the Standard to its full extent. By using all of the provisions of the Standard many of the problems could possibly be eliminated. The data indicates that to accomplish this an effort by the contractors, a more liberal interpretation of the provision and a willingness to accept changes proposed by the contractor on the government's part is required. Auditors and Administrative Contracting Officers (ACOs) must be willing to allow adequately supported changes to service lives. All of the above will require effort but should have the desired result.

Criticisms

(1) The Standard causes increased costs due to the paperwork involved. Many of the persons interviewed and many of the documents reviewed by the authors stated that the

emphasis on record keeping has increased costs to the government offsetting any savings realized under the Standard.

(2) The Standard requires longer lives than normally would be assigned. Many persons indicated that CAS 409 has caused lengthened asset lives. This is due to the reliance on historical records. Industry's complaint is that by requiring the longer lives it cannot recover the costs associated with the asset soon enough, so therefore they cannot afford to invest in new equipment.

(3) Not "good" cost accounting. The complaint is that CAS 409:

... requires that future service potential... should be based on past retention lives... not economic lives but retention lives... Service potential is equated... to how long the contractor retained... his tangible assets up to the point of disposition [16:2].

During the research the authors found that very few contractors take advantage of the standby/incidental use provisions of the Standard which would serve to decrease the service life of an asset.

(4) Not all of the provisions can be utilized. The authors found that most firms do not fully utilize the Standard. This is due to the additional record keeping required for some provisions and the problems with getting DCAA and/or ACO agreement on adjustments. Most firms complain that acceptance of changes is very difficult to obtain and therefore the attempt is not made.

(5) CAS 409 is a disincentive to investment. The critics claim that the Standard has lengthened the asset lives of new assets by relying on history. These increased lives prevent firms from recovering costs quick enough to make investments attractive.

II) Revise/Delete CAS 409

Included in this major position are two sub-positions as follows:

(a) Revise CAS 409 to delete the historical life requirements and substitute the old ASPR 15-205.9 rule.

(b) Delete CAS 409 and return to the old ASPR 15-205.9 rule only.

Each position will be presented and discussed below.

Revise CAS 409

The main problem with the Standard is the requirement that the service lives of new assets must be based on:

... records of either past retirement or, where available, withdrawal from active use... for like assets... used in similar circumstances... modified for... factors expected to influence future lives [9:5504].

Few contractors have found it practical to develop and maintain records of assets withdrawn from active use and placed in standby or incidental use. Another problem is that by using retention lives the standard has lengthened the lives of new assets to the point where firms cannot recover

their investment costs fast enough to make new investments attractive. A third problem is that forecasts of future service lives are hard to obtain. These forecasts are not easy to develop due to the variables involved. This situation has forced contractors to use retention lives of past assets for the service lives of new assets.

To eliminate the above problems deletion of the historical life requirement has been urged by some firms and individuals. These persons would like to replace this requirement with the old ASPR 15-205.9 rule. ASPR 15-205.9 dated 1 July 1974 stated:

a) Depreciation is a charge to current operations which distributes the cost of a tangible capital asset, less estimated residual value, over the estimated useful life of the asset in a systematic and logical manner. It does not involve a process of valuation. Useful life has reference to the prospective period of economic life in the particular contractor's operations as distinguished from physical life and shall be evidenced by the actual or estimated retirement and replacement practice of the contractor.

b) Normal depreciation on a contractor's plant, equipment and other capital facilities is an allowable element of contract cost provided the contractor is able to demonstrate that such costs are reasonable and properly allocable to the contract.

i) Depreciation will ordinarily be considered reasonable if the contractor follows depreciation policies and procedures which:

A) are consistent with the policies and procedures he follows in the same cost center with his business other than Government business;

B) are reflected in his books of accounts and financial statements; and

C) are used by him for Federal income tax purposes, and are acceptable for such purposes.

ii) Where the depreciation reflected on a contractor's books of account and financial state-

ments differs from that used and acceptable for Federal income tax purposes, reimbursement shall be based upon the cost of the asset to the contractor amortized over the estimated useful life of the property using depreciation methods (straight line, sum of the years' digits, etc.) acceptable for income tax purposes. Allowable depreciation shall not exceed the amounts used for book and statement purposes and shall be determined in a manner consistent with the depreciation policies and procedures followed in the same cost center in connection with his business other than Government business.

The key requirement of the above is that allowable depreciation charged to the government cannot exceed the amount used on the firm's financial statements. This has the effect of allowing the contractor to use the longer of either the tax lives or financial statement lives.

Support

(1) Revision would decrease paperwork and thereby costs. The Standard requires firms to maintain records of physical retirement of assets, withdrawal of assets to standby/incidental use, and of repair and maintenance.

This paperwork burden has only served to increase costs to the government without achieving the desired results.

(2) Asset lives would be shortened. Since CAS 409 has resulted in longer lives than normally would be assigned by the contractors for financial reporting purposes, adopting this revision would shorten asset lives of new assets. This would allow faster recovery of the cost of the asset which would remove the disincentive to invest.

(3) Allows contractors more flexibility in choosing service lives of new assets. The revision would enable firms to forecast service lives based on factors other than just history. Service lives would then more accurately reflect future service potential rather than past retention lives. The service life used for financial purposes must be acceptable to public auditors so therefore will not become totally meaningless figures.

(4) Maintains the requirement that the depreciation method used must reflect the consumption pattern of like assets in the past. Accelerated depreciation could not be used for assets consumed evenly over its life.

(5) Removes some of the disincentive to invest. By allowing firms to recover costs faster they will more favorably consider investment decisions.

Criticisms

(1) Provisions exist to modify asset lives. The Standard includes provisions to modify future service lives to consider standby/incidental use, repair and maintenance and technical or economic obsolescence. If the provisions of the Standard were more fully utilized, service lives could be reduced without having to revise the Standard.

(2) The Standard is dependent on the historical life requirement and would be virtually unusable without it. Deletion of the historical life requirement would necessitate

a major rewrite of the Standard as this is the basis for the remainder of the provisions of the Standard.

(3) Service lives would not be accurately reflected. Deletion of the historical life requirement would result in arbitrary service lives of assets and would no longer reflect the actual period of usefulness. This is one of the problems with the old ASPR 15-205.9 rule that CAS 409 was to solve.

(4) Costs would increase. The shorter the service life of an asset the greater the amount of depreciation charged per year. This would result in the government paying greater costs with a corresponding increase in the cost to the government for financing. Decreasing the service lives may have benefits after the asset is fully depreciated by resulting in lower (or no) depreciation charges to the government. These increased depreciation costs may also be offset by decreased operating costs due to reduced maintenance and lower production costs. However, if the DoD investment policy to encourage investment is actually realized the contractor would reinvest as soon as current assets are fully depreciated and these savings may never be realized. This would only be desirable if the reinvestments would continue to increase productivity. The only way savings could be realized is by continuing to reduce operating and production costs per unit. If productivity is not significantly increased to offset the increased depreciation charges the shorter asset lives would only serve to increase

a contractor's cash flow and the cost to the government.

(5) Not good cost accounting. If the previous definition of cost accounting is used, this suggested revision would not meet the requirements of cost accounting.

(6) No assurance that increased investment will occur. As shown in Chapter 4, there are many considerations in the investment decision. Alleviating one of the disincentives or making only one of the factors appear favorable will not result in increased investment. The entire picture must be considered and improved before investment will increase.

Delete CAS 409

The argument for this position is that the old ASPR 15-205.9 rule worked fine and that CAS 409 is unnecessary and does not accomplish its objectives (uniformity and consistency and the allocation of costs to output). The old rule, as shown above gave contractors the ability to determine future service lives and depreciation methods without having to base them on the past or on the consumption pattern of the asset.

Support

(1) Would shorten asset lives and allow use of any depreciation method desired by the contractor subject to the limitations set forth in the clause.

(2) Would eliminate the paperwork involved with using

historical lives and consumption patterns. This would save the government money.

(3) Shortening service lives and/or accelerating depreciation would allow firms to recover investment costs faster which would serve to remove the disincentive to invest associated with CAS 409.

Criticisms

(1) Not good cost accounting. Adoption of this rule would eliminate any attempt to accumulate historical costs for the purpose of providing inventory valuations. As shown above, this is the purpose of cost accounting.

(2) Costs to the government would increase. The same argument set forth in the previous position applies.

(3) Service lives and depreciation methods would become arbitrary. The old ASPR rule allows firms to assign any service life and use any depreciation method desired as long as it is acceptable for Federal income tax purposes. The only limitation is that the amount of depreciation charged cannot be greater than that used for financial accounting purposes. Lives and methods do not have to be based on the actual expected life or consumption pattern of the asset.

(4) No assurance that increased investment will occur. The same comments used above apply.

III) Change CAS 409 to Incorporate the ERTA Lives.

This position would delete the historical life requirement of the Standard and replace it with the ERTA 10-5-3 lives. The remainder of the Standard would remain unchanged.

Support

(1) Will encourage capital investment by accelerating depreciation. This would allow firms to recover their costs faster which would remove the disincentive to invest associated with the Standard.

(2) The revision is consistent with DoD policy to increase capital investment to enhance productivity by motivating the defense industry to improve capital investment.

Criticisms

(1) Not good cost accounting. This change would abandon the concept of using historical costs to value output. The ERTA lives are not a reflection of usage and are thus arbitrary and should not be used.

(2) Cost accounting and tax accounting have different purposes. The lives used for tax accounting are used to compute the amount of profit on which a firm must pay income tax. Cost accounting is used to value output. Clearly the two accounting concepts are different and should remain

separate.

(3) Costs to the government would increase. The same argument used above is again valid. Any change to CAS 409 must consider the cost to the government.

(4) The Standard is based on history. The Standard is based on the historical life requirement and would be virtually unusable without it. The same comments presented above still apply.

(5) No assurance that increased investment will occur. The same comments used above apply.

Defense Contractor Cash Flows

Cash flows are used in meeting current obligations. When cash flows are being received at a faster rate than obligations are being paid, this creates a cash flow surplus. This surplus will be used to meet financial obligations, but until those bills need to be paid, the cash flow is providing a ready source of short-term capital that can be employed in any manner the company sees fit. The funds must be available, however, when obligations arise. This short term excess can be used to increase the return on owners' equity, or to reduce term debt. The size of this cash stream, and the amount of extra cash available at any one time, can be the major reason for staying in a line of business that otherwise shows marginal or no profitability.

The investment of one dollar into a company's real

assets has some value to the company. Contribution to net profit margins may increase or cash flows may be increased based on billings under government contracts. In determining the impacts that shortening asset lives would have on cash flows (through present value techniques) a hypothetical investment needs to be established.

A capital investment problem is essentially one of determining whether the anticipated cash inflows from a proposed project are sufficiently attractive to warrant risking the investment of funds in the project [1:640].

To evaluate the impacts of shortening asset lives on both cash flows and investment decisions, one must somehow quantify the improvements. The following paragraphs will define the variables used in performing the analysis.

Total depreciation expenses as a percentage of cost-of-goods-sold have been found to be approximately five percent, in the Aerospace Defense sector (17). Five percent will be used in determining the impacts on cash flows of changes in asset lives.

Table One is based on the investment of one dollar in assets generating various present values under various asset lives and discount rates. Two depreciation methods are used, straight line and sum-of-the-years-digits, both acceptable for federal tax purposes.

Table Two uses the results of table one to derive various percentage improvements in the present value of the cash flows generated by depreciation when asset lives are

TABLE 1

PRESENT VALUE (Cash Flows)

of \$1 in Asset Value

With No Residual or Resale Values

STRAIGHT LINE DEPRECIATION

		Asset Life					
		3	5	10	12	15	20
Net Present Value							
at i =	18%	.72	.62	.45	.40	.34	.27
	15%	.76	.67	.50	.45	.39	.31
	12%	.80	.72	.56	.52	.45	.37

SUM OF THE YEARS DIGITS

		Asset Life					
		3	5	10	12	15	20
Net Present Value							
at i =	18%	.76	.69	.55	.49	.45	.39
	15%	.80	.73	.60	.56	.50	.44
	12%	.83	.77	.66	.62	.56	.51

TABLE 2
PERCENTAGE IMPROVEMENTS
 IN
PRESENT VALUE (Cash Flows)

STRAIGHT LINE DEPRECIATION

Discount Rate = i

Asset Life = t

Entries as Percentages

		<u>TO</u>											
		<u>$i = 18\%$</u>				<u>$i = 15\%$</u>				<u>$i = 12\%$</u>			
		t	3	5	10	t	3	5	10	t	3	5	10
<u>FROM</u>	5	14	--	--	5	12	--	--	5	10	--	--	
	10	37	28	--	10	34	25	--	10	29	22	--	
	12	45	36	11	12	41	33	10	12	36	28	9	
	15	--	46	24	15	--	42	22	15	--	37	20	
	20	--	57	40	20	--	53	38	20	--	48	34	

SUM OF THE YEARS DIGITS

		<u>TO</u>											
		<u>$i = 18\%$</u>				<u>$i = 15\%$</u>				<u>$i = 12\%$</u>			
		t	3	5	10	t	3	5	10	t	3	5	10
<u>FROM</u>	5	9	--	--	5	9	--	--	5	7	--	--	
	10	28	20	--	10	25	18	--	10	20	14	--	
	12	36	29	11	12	30	23	7	12	25	19	6	
	15	--	35	18	15	--	32	17	15	--	27	15	
	20	--	43	29	20	--	40	27	20	--	34	23	

shortened. Blocks without entries are those changes that cannot reasonably be expected to occur under currently foreseeable circumstances.

The utilization of three, five, and ten year asset lives as the shortest lives corresponds to those established under the 1981 Economic Recovery Tax Act. Twelve, fifteen, and twenty year lives are currently hypothetical asset lives for Defense contractors.

The high discount rates correspond to higher prime interest rates and also to higher rates of inflation. The discount or prime rate is composed of anticipated inflation plus a real rate of return. Using the shorter periods for asset lives dictated by ERTA results in much higher present values. The tables show the quantitative results of adopting shorter asset lives under varying prime interest rates. Cash flow improvements during high inflation are much greater than under low inflation. At very low interest rates (3-5%) with no inflation, the length of asset lives does not greatly impact the present value. High interest rates erode present values. This can be countered by using compressed asset lives for billing purposes, at least during periods of high interest rates.

Now that the variables have been identified and discussed, an evaluation of the improvements based on both a total project basis and individual asset basis will be conducted.

With a prime interest rate of 15%, shifting from a ten year to a five year asset life increases present value by 18% under sum-of-the-years-digits depreciation. Using five percent for total depreciation costs (as a percentage of total cost-of-goods-sold) results, at the very best, in an improvement of cash flows for the project of .9%. To realize this type of an improvement the contractor would either have to buy all new equipment or be allowed to revalue his assets under the ERTA guidelines. Taking the best case example of changing as asset life from 20 to 5 years with a 15% discount rate would provide a 40% present value improvement for the asset, and only a 2% improvement in total project cash flows. Again, this is the most optimistic case. In reality, if the average age of the contractors' plant and equipment is ten years, one-tenth can be expected to be replaced every year. This translates into not 2% but a .2% increase in cash flows.

The most optimistic improvement in cash flows of 2%, is opposed to a realistic improvement of .09% (one tenth of .9%), on a project's cost-of-goods basis. Referring back to the AIA study (2:10743-10744) on changes in asset lives after implementation of the CAS 409 standard, no significant changes in asset lives were found. Perhaps on this basis the most realistic projection is that no increase in plant and equipment investment can be expected. Cash flows, therefore, could be expected to increase on the average from .09% to 2% on the basis of cost-of-goods-sold.

Based solely on an evaluation of present values, using ERTA asset life guidelines, the expected average increase in cash flows as a result of the decreased asset lives is marginal.

Analysis

Each of the major positions will be analyzed below regarding the following questions:

(1) Does the position meet the objectives of the Cost Accounting Standards?

(2) Does the position result in increased contractor cash flow?

(3) Will the position achieve the goal of the Department of Defense Acquisition Improvement Program to encourage investment and to enhance productivity?

1) Provide Full Use of CAS 409 and Liberal Interpretation of the Asset Life Modification Provisions

1. Yes. By maintaining the Standard as it exists the objectives of the cost accounting standards are maintained. The use of historical data is used to value inventory which is the heart of the definition of cost accounting.

2. Yes. As shown by the cash flow evaluation shortening asset lives will result in an increase in cash flow. However, the evaluation indicates that the increase will be only marginal.

3. No. The discussion of the position indicated that

the Standard includes provisions to shorten asset lives which would remove the disincentive associated with CAS 409. However, merely removing the disincentive to invest will not cause increased investment. The research indicates that there are many factors involved in the investment decision. All of the factors involved must be considered and the entire environment must be improved before investments will be significantly increased.

IIa) Revise CAS 409

1. No. Deletion of the historical life requirement does not meet the objective of cost accounting. Therefore, this position does not meet the objectives of the Cost Accounting Standards.

2. Yes. As shown by the cash flow evaluation shortening asset lives will increase cash flow. As also shown the improvement would be only marginal.

3. No. This position would only serve to remove the disincentive to invest associated with CAS 409 by allowing contractors to assign arbitrary lives to assets. This is only one of the factors in the investment decision. All of the factors involved must be considered and the entire environment must be improved before investments will be significantly increased.

IIb) Delete CAS 409

1. No. Deleting the Standard will remove any attempt at using cost accounting techniques for depreciation.

2. Yes. As shown in the cash flow evaluation shortening asset lives will result in an increase in cash flow. However the evaluation also shows that the increase will be only marginal.

3. No. There is no assurance that the asset lives will decrease. Deletion of the Standard may have the same effect as did adoption of the Standard no change in asset lives. If this is the case, contractors would have no better investment incentive than currently exists and no increase in investments is likely.

III) Revise CAS 409 to Incorporate the ERTA Guidelines for Service Lives

1. No. This position would assign arbitrary lives to new assets. This would abandon the concept of using historical costs to value output, which is the heart of cost accounting.

2. Yes. As shown in the cash flow evaluation shortening asset lives will increase cash flow. However, the increase would be only marginal.

3. No. This position would only reduce the asset lives of new assets. This would remove the disincentive associated with CAS 409. The asset life for depreciation is only one of the factors in the investment decision. All of

the factors involved must be considered and the entire environment must be improved before investments will be significantly increased.

TABLE 3
ANALYSIS SUMMARY

Position		I	IIa	IIb	III
	1	Yes	No	No	No
Question	2	Yes*	Yes*	Yes*	Yes*
	3	No	No	No	No

*Marginal increase only

CHAPTER 6

CONCLUSIONS & RECOMMENDATIONS

Introduction

This chapter presents the findings of the analysis performed in Chapter 5. The findings will lead to the authors' conclusion. Recommendations are given following the conclusion.

Findings

1. Three of the four positions do not meet the objectives of the Cost Accounting Standards. Only position I meets the definition of cost accounting; using historical costs to value inventory.

2. All of the positions would result in an increase in contractors cash flow, which would increase capital available for investment. Although cash flow would increase, any such increase would be marginal. Chapter 5's cash flow analysis indicated that cash flows through depreciation could, optimistically improve up to 40% percent based on just depreciation cash flows. On a total cost-of-goods-sold basis, these figures translate into a range of .09% to 2% improvements in total cash flows.

3. None of the positions will achieve the goal of the DoD Acquisition Improvement Program; to enhance capital

investment to enhance productivity. As shown in Chapter 5 there are many factors in the investment decision. The asset life of a potential investment is only one factor in the decision to invest. Industry sees CAS 409 as a disincentive to investment, and merely removing the perceived disincentive will not achieve the desired goal of encouraging investment.

Conclusion

Position #1: Provide full use of CAS 409 and a liberal interpretation of the asset life modification provisions, should be adopted. The research, data discussions, and data analysis show that none of the positions will achieve the goal of encouraging investment. Only position #1 is consistent with the objective of the Cost Accounting Standards. If none of the positions provide substantial relief, the Cost Accounting principles carried out through CAS 409 should not be destroyed. As CAS 409 is perceived by the defense industry as a disincentive to invest, adoption of position #1 would remove the perceived disincentive. This result is the best that can be achieved.

In order to achieve this result, effort on both the government's and the contractor's part is required. Contractors must be willing to keep adequate records to show standby and incidental usage. They must be willing to provide adequate justification to the government supporting requested changes in asset lives. The government's

contracting officers and auditors must be willing to accept adequately justified changes in asset lives. In order to make the standard work and to remove the perceived disincentives, both parties must make an effort.

Recommendations

Evaluation of the research conclusions leads the authors to make the following recommendations.

In order to implement the provisions of the DoD Acquisition Improvement Program Initiative #5, the information contained in this thesis should be provided to the DoD CAS Working Group. This group should provide guidance and implementation instructions to the field and contractors thru a working group paper.

A cost/benefit study regarding improvements in increased readiness, productivity, and efficiency of the Defense Industrial Base would be useful. A mathematical model or computer simulation of various defense contractors' investment criteria would be useful in planning and attempting to improve investment patterns. Studies regarding the validity and reliability of various plant productivity and capacity incentives would be useful. Studies regarding a systems approach to increasing the stability of the defense market would be invaluable if cost profile changes and specific courses of action were identified.

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