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DOD TASK FORCE TO IMPROVE INDUSTRIAL RESPONSIVENESS(U)
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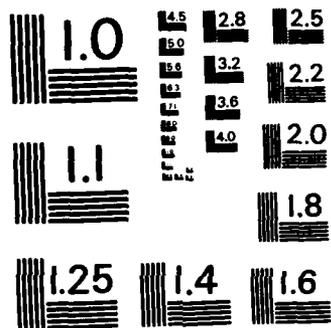
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Summary Report

March 1982

Edward J. Kelly

DOD Task Force to Improve Industrial Responsiveness

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ACKNOWLEDGMENTS

There are many individuals and organizations who have been particularly helpful in making this Task Force effort possible. Particular recognition is due to Dr. Richard De Lauer, Mr. Bob Trimble, Mr. Dick Donnelly and Dr. Lloyd Lehn of the Office of The Secretary of Defense (OSD) and Brigadier General Joseph H. Connolly, of HQ USAF for seeing the potential of this Task Force and giving this project its start. Particular recognition is also due to each of the Services and the Defense Logistics Agency for their generous cooperation during the Task Force effort and for providing a group of highly talented individuals who made up the Task Force. Recognition is also due to the DoD Industrial Responsiveness Steering Group with particular thanks to Mr. Dick Donnelly and Mr. John DuBreuil, Mr. Martin Rogers, Mr. Bill Takakoshi, and Ms Joanne DeCarlo for their advice and encouragement during the course of the Task Force effort. Many thanks are also due to Mr. Chuck Downer, Col USAF (Ret) and Mr. Sol Love, OSD consultants, as well as to Mr. Leon Reed of The Analytic Sciences Corporation, for their expert review and comments on the Task Force's recommendations. This effort would not have been possible were it not for an extremely talented and dedicated Task Force team. Recognition is also due to Lt Col Eugene Kluter, USAF, whose Air Command and Staff College paper was used as the basis for the proposed DOD Guide for Improving Productivity. Special thanks are due to Lt Col Doug Richardson, HQ USA, the Task Force Deputy Director, who helped guide this complex project. Lastly, special recognition is due to those individuals in both government and industry who participated in the industrial base studies upon which the Task Force effort was based. In particular, The DOD Action Plan for Improving Industrial Responsiveness proved to be an outstanding framework for orienting and guiding the Task Force's efforts.

FRANCIS E. DOHERTY, LT COL, USAF
Task Force Director

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EXECUTIVE SUMMARY

This report summarizes recommendations of the DOD Task Force to Improve Industrial Responsiveness. In May 1981, Dr. Richard De Lauer, Under Secretary of Defense, Research and Engineering, believing that the problems of the industrial base were serious and that the time had come to act, chartered a Joint Service Task Force to propose changes to DoD policy to implement the key recommendations of a number of previously accomplished industrial base studies. The following paragraphs outline the changes proposed by the Task Force:

The Defense Acquisition Process (See paragraph 2.1 of the report.)

- o Established Defense Systems Acquisition Review Council (DSARC); reportable production related goals to increase program manager focus on industrial resource constraints and productivity issues early in the acquisition cycle.
- o Required use of the most efficient production rates consistent with resources available. The effect of variations in production rates must be clearly defined and presented to DSARC principals.
- o Developed a requirement for an Industrial Resource Analysis to allow the program manager to identify the up-front resource requirements; including capital investments and timing of financial commitments, required to have resources available to support initial production.
- o Required closer consideration of industrial preparedness planning in peacetime production rate and productivity improvement investment decisions.
- o Required that Industrial Preparedness Planning (IPP) be considered for all programs and that IPP funding requirements be clearly defined and reported to the DSARC principals.
- o Proposed changes to the Defense Acquisition Regulation (DAR) to add surge option clauses and an improved definition of Industrial Preparedness Planning concepts.
- o Required increased emphasis on industrial base issues in advance procurement planning and source selection.

Industrial Preparedness Planning (See Paragraphs 2.2 and 2.3 of the report.)

- o Assigned responsibility for management and oversight of industrial resource planning within the Office of the Secretary of Defense (OSD) and Department of Defense (DoD) components.
- o Integrated separate but related industrial resource programs under a single resource oversight program.
- o Required that a composite Production Base Analysis be developed to identify industrial base shortfalls and assist in determining priorities for optimal allocation of DoD resources.
- o Prescribed time phasing for planning and submission of Industrial Preparedness Planning information to maximize its utility in budgeting and resource allocation decisions.
- o Required DoD components to maintain critical item lists and that a consolidated critical item list be maintained by OSD.
- o Prepared a proposed SECDEF policy statement on the Defense Industrial Base to promote industrial base improvement initiatives and to highlight the importance of the industrial base as an essential element of the nation's deterrence.

National Resource Base (See paragraphs 2.4 through 2.6 of the report.)

- o Developed a comprehensive DOD Guide entitled "Improving Productivity in Defense Contracting." This guide identifies the methodology and contractual approaches (including sample clauses) available for integrating capital investment incentives and technology modernization (Tech Mod) programs into DOD contracts.
- o Developed proposed amendments to the Defense Production Act (DPA) of 1950 which would result in the following changes:
 - Title III - Proposed removal of current obstacles to use of Title III by reducing the Congressional review period for financial assistance proposals and providing "up front" funding for such projects (as opposed to annual OMB review, authorization and appropriations for specific projects).
 - Title IV (New Title) - Proposed requiring a continuous review of local, national and sectoral defense labor problems, and recommendation/implementation of proposed solutions. This review would most likely be accomplished by the Department of Labor with major inputs from DoD. Annual reports would be provided to Congress. This amendment also requires regular consultation with representatives of labor on IPP issues.

-- Title VII - Proposed removal of unnecessary restrictions on the convening of voluntary agreements with industry and provides for a 5-year extension of the DPA.

- o Tied together DoD programs which generate materials availability information to assure OSD visibility for consideration of corrective action to "head off" material availability problems (including use of DPA Title III) before problems become severe.
- o Fixed responsibility within OUSDR&E and DOD Components for exchange of information regarding material availability and shortages.
- o Updated the manufacturing technology (MANTECH) guidance to consolidate current MANTECH policy and establish procedures for closer coordination among the Services.

The changes developed by the Task Force are shown in the Tabs 4 through 15 to this report. These changes are proposed, as of the time of this report, and will require OSD and DoD Component review before becoming DoD policy. The Task Force efforts represent a substantial first step in identifying some of the most seriously needed changes to defense policies affecting the industrial base. If accepted for implementation, they should result in significant improvements in industrial responsiveness. However, vigorous action and top management emphasis will be required to insure rapid and meaningful implementation of the proposed policy changes.

INTRODUCTION

1.1. Background

The capability of the defense industrial base to economically produce and respond to peacetime, surge and mobilization defense production requirements on a timely basis is a major element of our national strength and deterrence. A number of studies conducted over the past two years have highlighted the deteriorating condition of the industrial base, its diminishing ability to respond in times of crisis, and the danger that this problem poses to our national security. These studies have been in general agreement that:

- o Current Department of Defense programs do not adequately address the industrial preparedness and industrial responsiveness issues.
- o Current Defense acquisition procedures do not promote maintenance of a sound industrial base which can be responsive to peacetime, surge and mobilization needs.

In May 1981, Dr. Richard De Lauer, Under Secretary of Defense/ Research and Engineering, believing that these problems were serious and that the time had come to act, chartered a Joint Service Task Force to propose changes to DoD Policy to implement the key recommendations of a number of previously accomplished industrial base studies (Tab 1). The composition of the Task Force, its Steering Group and Special Advisors is shown in Tab 2.

1.2 Methodology/Approach

The Task Force used the Improvement Triad from the DoD Action Plan to Improve Industrial Responsiveness as the framework for orienting its efforts (Figure 1).



Figure 1 - The Improvement Triad

Specific recommendations and findings from nine reports (Tab 3) were reviewed to determine the more important policy changes needed. The Task Force maintained contact with other OSD offices involved in implementing the DoD Acquisition Improvement Program to ensure coordination and to avoid duplication of effort.

The Task Force established a systems approach of addressing major issues identified in the Improvement Triad and following these issues, as appropriate, through individual directives and groups of directives. The Task Force made a concerted effort to ensure that responsibilities for enhancing industrial responsiveness were defined and assigned to appropriate levels. Direct management responsibilities were assigned to program managers, and oversight and coordinating functions were assigned to the Office of the Secretary of Defense and the DoD components.

The result was an integrated series of proposed policy revisions for enhancing industrial responsiveness, each of which addresses one or more elements of the Improvement Triad. The directives and other documents revised or developed, and their relationship to the Improvement Triad, is shown in Figure 2.

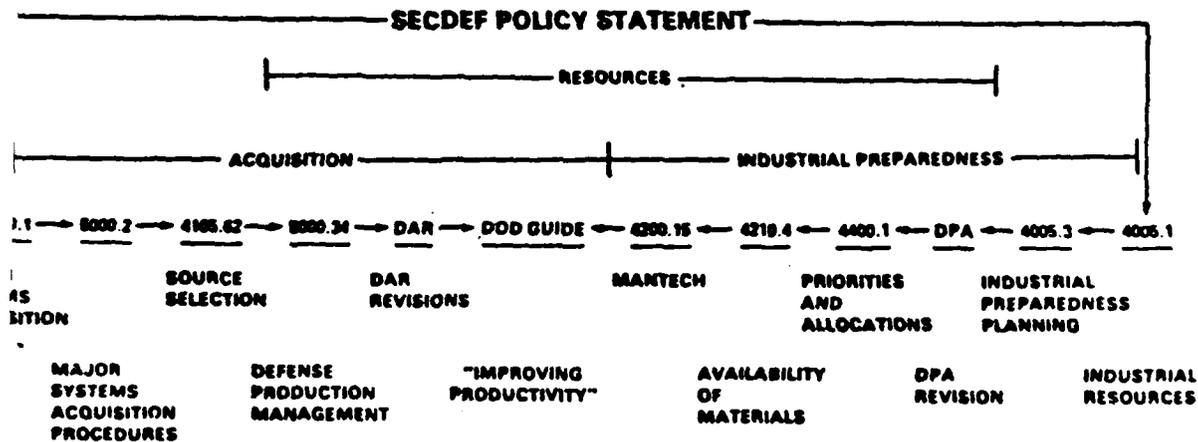


Figure 2 - Documents Revised by the Task Force, Showing Relation to the DoD Improvement Triad

RECOMMENDATIONS

The changes proposed by the Task Force are shown in Tabs 4 through 8. In addition, the Task Force developed a SECDEF policy statement on defense industrial base, which is not shown. A one-page summary of the proposed changes has been included in each of the Tabs. Most of the documents were informally coordinated with key offices while they were being developed, and are now ready to enter the formal coordination process.

Defense Acquisition Process

A number of industrial base studies have highlighted the need to integrate industrial base considerations into the acquisition process. One of the objectives of the Task Force was to increase the program manager's involvement in industrial base issues related to his program. The goals of increasing program manager involvement were (1) to insure use of efficient production methods consistent with resources; (2) to insure early identification of potential production problems, as well as opportunities for increasing productivity; (3) to provide a closer link between peacetime acquisition production planning and industrial preparedness planning.

To accomplish these goals, revisions were proposed to DoD Directive (DoDD) 5000.1, DoD Instruction (DoDI) 5000.2, DoDD 5000.34, DoDD 4105.62, and Defense Acquisition Regulation (DAR) (Tabs 4 through 8). Specific changes proposed were:

- o To establish DSARC reportable goals and thresholds (production lead time, acceleration rate, production rate, and surge production rate) in order to increase program manager management focus on industrial resource constraints and productivity issues early in the acquisition cycle.

- o To provide linkage between peacetime acquisition and surge/mobilization production by requiring that Industrial Preparedness Planning (IPP) be carefully considered when making production rate decisions. The need for IPP funding must be clearly defined and reported to the DSARC principals, along with projections of the impact of not providing such funding.
- o To require use of the most efficient production rates, consistent with resources available. The effect of variations in production rate must be clearly defined and presented to the DSARC principals.
- o To develop a requirement for an Industrial Resource Analysis to allow the program manager to identify the up-front resource requirements (including capital investments) and timing of financial commitments required to have resources available to support initial production.
- o To add surge option clauses and improved definition of Industrial Preparedness Planning concepts to the Defense Acquisition Regulation.
- o To place added emphasis on industrial base issues in advance procurement planning and source selection.

Industrial Preparedness Program - Planning

Many recent studies have concluded that the Department of Defense Industrial Preparedness Planning (IPP) program has been ineffective. Responsibilities been diffused among many offices, emphasis given to the program by each ce has differed, and the interest shown by industry has generally waned o lack of funding and follow-through on correcting problems which were ified.

The Task Force noted that many IPP improvement actions were already way within OSD. The Task Force proposed major revisions to 4005.1 and DoDI 4005.3 (Tabs 9 and 10) to:

- o Fix responsibility for management and oversight of industrial resource planning within OSD and DoD component levels.
- o Integrate separate-but-related industrial resource management programs (IPP, Manufacturing Technology, industrial plant and equipment, materials management, etc.) under a single resource oversight program.
- o Require development of a DoD composite Production Base Analysis, in conjunction with the Services, to identify and address industrial capabilities and shortfalls.

INDUSTRIAL BASE STUDIES CONSIDERED

DoD - Action Plan for Improvement of Industrial Responsiveness

OSD - Carlucci Memo: Improving the Acquisition Process (30 Apr 81)

"The Ailing Industrial Base: Unready for Crisis," Committee on Armed Services, U.S. House of Representatives (31 Dec 80)

Defense Science Board Study Summer 1980 Study on Industrial Responsiveness (Jan 81)

GAO Report - DoD's Industrial Preparedness Program Needs National Policy to Effectively Meet Emergency Needs

HQ AFSC "Payoff 80" - Executive Report on Manufacturing Technology Investment Strategy

USAF Advisory Board Ad Hoc Committee on "MANTECH" program (Dec 80)

GAO Report - Follow-up on Use of Numerically Controlled Equipment to Improve Defense Plant Productivity (17 Jan 79)

Lawrence Livermore National Lab (LLNL) Project: Machine Tool Systems Management and Utilization

3 REPORTS
3 CONSIDERED

Special Advisors

Mr. Harrell R. Barnett, HQ DA

Mr. David E. Chase, Center for Naval Analyses

Captain David W. Cormany, USAF(R)

Mr. Charles Downer, Consultant to DOD

Major Eugene Kluter, USAF

Mr. Sol Love, Consultant to DOD

Mr. George T. Nicholas, HQ ARRCOM

Mr. Leon S. Reed, The Analytic Sciences Corporation (TASC)

Mr. Roderick Vawter, HQ DA

The Manufacturing Technology Advisory Group (MTAG) - Executive Committee

Faculty Members of the Defense Systems Management College

Faculty Members of the Industrial College of the Armed Forces

DoD TASK FORCE
TEAM COMPOSITION

DoD Task Force

Lt Col Francis E. Doherty, HQ USAF (Task Force Director)
Lt Col Douglas J. Richardson, HQ DA (Task Force Deputy Director)
Capt Louis R. Albani, HQ AFLC
Mr. Roy Arnold, HQ DARCOM
Mr. Stephen F. Hood, HQ DLA
Mr. Richard Schulte, HQ NAVMAT
Mr. Robert S. Shelley, HQ AFSC
Mr. Mark Werfel, HQ AFSC
Ms. Sandra Coleman, HQ USAF

DoD Steering Group

Mr. Richard E. Donnelly, ODUSDRE(AM)
Mr. John DuBreuil, ODUSDRE(AM)
Mr. Martin Rogers, OASAF (RDL)
Mr. W. K. Takakoshi, ASA (RDA)
Ms. Joanne De Carlo, OASN(S&L)
Mr. John B. Todaro, HQ NAVMAT
Mr. Jim Conklin, HQ DLA
Dr. Lloyd Lehn, ODUSDRE(AM)
Col Edward Karl, ODUSDRE(AM)
Mr. John Osterday, ODUSDRE(AM)
Mr. James Kordes, ODUSDRE(AM)

2 TASK FORCE
COMPOSITION

It will be necessary for the Joint Service Team to call on the functional expertise of personnel within each Service and DLA for short-time periods. I ask that each Military Department and DLA extend their full support for this as well. Little, if any, travel is contemplated; however, each Department or Agency is requested to provide travel and per diem funding as required.

I request your strong support and best people for this effort. Nominations of team members should be furnished to Lt Col Doherty, the Pentagon, Room 4C283, ext. 54167, within the next five working days. He will then schedule the first meeting of the Joint Service Team. The agenda for the first meeting will include discussion of the objectives, schedules, and organization of the Joint Service effort.

I consider this initiative an extremely important element of our overall efforts to improve the productivity and responsiveness of the Defense Industrial Base. I ask for your full cooperation and support.

J. H. McInerney



THE UNDER SECRETARY OF DEFENSE

WASHINGTON, D.C. 20301

RESEARCH AND
ENGINEERING

20 MAY 1981

MEMORANDUM FOR ASSISTANT SECRETARY OF THE ARMY (RESEARCH, DEVELOPMENT AND ACQUISITION)
ASSISTANT SECRETARY OF THE NAVY (RESEARCH, ENGINEERING AND SYSTEMS)
ASSISTANT SECRETARY OF THE AIR FORCE (RESEARCH, DEVELOPMENT AND LOGISTICS)
DIRECTOR, DEFENSE LOGISTICS AGENCY

SUBJECT: Improving Industrial Responsiveness

One of the key concerns of this administration is the ability of our Defense Industrial Base to respond to DoD's peace-time and potential national emergency requirements. During the past few years a series of Industrial Base studies have provided policy change recommendations intended to strengthen Industrial Base responsiveness. Many of those recommendations are sound but remain unimplemented. I want to implement those having merit. To facilitate expedited action in this vital area, I am directing formulation of a Joint Service Team to insure implementation of selected recommendations contained in recently completed major Industrial Base studies, as well as implementation of those decisions relating to industrial responsiveness contained in the April 30, 1981 DEPSECDEF memorandum, subject: Improving The Acquisition Process. This effort will be accomplished on an incremental basis with completion in six months.

Both the DEPSECDEF and I will monitor the progress of this Joint Service Team. This effort will require full cooperation of the Services, the Defense Logistics Agency (DLA), other DoD organizations and Federal Departments. The Air Force has been asked to lead the Joint Service Team. Lt Col Doherty, AF/RDC, will serve as team leader. I am requesting that each Service designate three qualified individuals and DLA one individual to serve on this Team. Team members must be capable of developing proposed policy and coordinating actions within their respective Service and within other Departments and Agencies. The Team should also plan to obtain the views of appropriate industry associations as needed. The Team will report to the DoD Senior Level Steering Group on Improving Industrial Responsiveness. Resultant implementation actions will be in a form that can be provided to the necessary action agency for final approval and implementation.

1 TASK FORCE
CHARTER

- Continuation of proposed efforts to establish a coherent long term industrial base improvement program with definition of objectives and priorities for resource allocation.

CONCLUSIONS

The Task Force efforts represent a substantial first step in identifying some of the most seriously needed changes in defense policies affecting the industrial base. A broad series of substantive changes have been proposed which should positively impact acquisition strategies, management of industrial resources and industrial preparedness planning. If implemented these changes should have a significant impact on improving industrial responsiveness and defense production efficiency. However, vigorous action and top management emphasis will be needed to assure rapid and meaningful implementation of the proposed policy changes. Implementation will also require education, organization, manpower, analyses and funding.

The transition plan shown in Tab 16 has been proposed to assist in the orderly transition of responsibility for the final processing and implementation of the proposed directives. In addition, the Task Force developed a list of study recommendations and issues which could not be addressed by the Task Force due to time constraints, but which were candidates for future implementation action. Some of the more significant recommendations for future action include:

- Pursuit of changes to Cost Accounting Standard (CAS) 409 to revise guidelines for charging accelerated depreciation to government contracts in light of the Economic Recovery Act of 1981.
- Expanding sources of funding for Technology Modernization (Tech Mod) programs which have a high potential for increasing productivity.
- Revisions to the priorities and allocation directives to make these programs more effective. The Task Force did not propose any major revisions to these directives because of the pending revisions to this program by the Department of Commerce.
- Revisions to directives on industrial plant and equipment. These directives were not pursued, due to limited time and the pending DAR cases on this subject, however, substantial revisions to these directives are needed to accommodate more up-to-date acquisition, custodial and utilization policies.

The DoD Task Force developed a proposed DoD Guide entitled "Improving Productivity in Defense Contracting" (Tab 15). In addition, the Task Force worked with the Manufacturing Technology Advisory Group (MTAG) Executive Committee to update DODI 4200.15 (Tab 14). These documents are described below:

- o A comprehensive DoD Guide was developed to identify under one cover the methodology and the contractual approaches (including sample clauses) available for integrating capital investment incentives into DoD contracts. The DoD Guide also provides definitions and procedures for establishing Technology Modernization (Tech Mod) Programs.
- o DoDI 4200.15 was revised to clearly define MANTECH objectives, management and structure funding procedures, and to incorporate other recommendations from GAO reports, the "Payoff '80" study and the USAF Ad Hoc Advisory board report.

- Defense Contractor Energy Shortages and Conservation (DoDI 4170.9)
- High Dollar Value Spare Parts Breakout Program (DoDI 4105.60)

2.5 National Resource Base - Skilled Labor

Problems associated with shortages of skilled labor are particularly complex and very little is known about what to do about these problems. More than half of the skilled tool makers in this country will retire within the next 8 years. Industry is producing about 25% of the journeymen needed each year to replace those lost through attrition. There is also a serious shortage of engineers and technical personnel. There is a projected shortage of 49% in industrial engineering over the next 10 years. These trends will impact defense industry costs and capabilities. To assist in remedying the problem the DoD Task Force proposed an amendment to the Defense Production Act which would add a new Title IV dealing with labor (Tab 13) which:

- o Requires continuous review of local, national, and sectoral defense labor problems, along with identification and implementation of proposed solutions. Annual reports would be provided to Congress. It is anticipated that these surveys would be performed by the Department of Labor, with major inputs from DoD.
- o Requires regular consultation with representatives of labor on defense labor and industrial preparedness issues.

2.6 National Resource Base - Productivity

Capital investment in technology modernization and new equipment makes a major contribution to productivity growth. In past years DoD has attempted to provide incentives to contractors for capital investment to improve productivity, but defense related industries lag behind other industries in making such investments. Contractual incentives and other techniques for improving productivity need to be more clearly defined for use by contracting and program management personnel.

In 1981, stockpile purchases resumed for the first time in 20 years. However, Title III remains unfunded and unused. Numerous problems have been identified with specific Defense Production Act (DPA) authorities, as well as with inadequate implementation of existing authorities. Excessive constraints have inhibited the use of Title III authorities which permit financial assistance to expand productive capacity and supply for critical raw materials or for other purposes. The Task Force prepared the following proposed amendments to the Defense Production Act and proposed changes to DoDI 4210.4 and DoDD 4400.1 (Tabs 11 through 13):

- o Proposed amending the DPA's Declaration of Policy for applicability to the present day environment.
- o Proposed removing unwarranted obstacles to approval and funding of Title III financial assistance proposals, by providing an "up-front" source of funds for such projects (as opposed to annual OMB review, authorization and appropriation of specific projects) and reducing the Congressional review period, while increasing the requirements for substantive review and justification of Title III proposals.
- o Proposed amending DPA Title VII to remove unnecessary restrictions on the convening of voluntary agreements with industry and providing for 5-year extension of the DPA.
- o Fixed responsibility within OUSDR&E and Services/DoD Agencies for exchange of information regarding materials availability and shortages.
- o Provided for single OSD committee oversight of five separate materials availability programs to (1) maintain a coordinated assessment of materials availability problems; (2) anticipate serious bottleneck or dislocation problems which could impact defense production and (3) take appropriate action to head off or deal with availability problems (including use of DPA Title III) before problems impact production. The material related programs that would be reviewed under the proposed change would be:
 - Priorities and Allocations (DoDI 4400.1)
 - Industrial Preparedness Planning (DoDI 4005.3)
 - Diminishing Manufacturing Sources and Materials Shortages (DoDD 4005.16)

- o Prescribe schedules for planning and for submission of planning information to maximize their utility in budgeting and resource allocation decisions.
- o Establish a procedure for OSD, in conjunction with other agencies, to monitor the impact of existing, new and proposed laws and regulations on peacetime, surge and mobilization defense production.
- o Require that Critical Items Lists be developed by each service and a composite list be maintained by OSD.

2.3 Industrial Preparedness Planning - Guidance and Funding

The Task Force prepared a draft policy letter to accompany the recently prepared Defense Guidance and to indicate the importance of the industrial base in our national security posture. This letter has been placed in OSD coordination and therefore is not included with this report. The draft letter emphasizes:

- o That a responsive defense industrial base is an essential ingredient of the nation's deterrent posture.
- o That industrial base enhancement efforts are important not merely for surge and mobilization contingencies, but also for achieving efficient production of peacetime programmed systems.
- o That failure to implement industrial base improvements will not result in maintaining the status quo, but will rather result in continued degradation of our defense posture.

2.4 National Resource Base - Materials

Since approximately 1973, problems with materials availability have multiplied and threatened to affect national security. Both the Defense Science Board 1980 Summer Study and the report of the Defense Industrial Base Panel of the House Armed Services Committee pointed to (1) the need for the U.S. to maintain an adequate National Stockpile of strategic and critical materials, and (2) the need to more effectively utilize the authority of Title III of the Defense Production Act (DPA).

4 DODD 5000.1
Major Systems Acquisition

Revision of DoD Directive 5000.1

(Major Systems Acquisition)

This general policy directive was already undergoing revision to incorporate recommendations from the Carlucci plan. The TFIRE addition to DoDD 5000.1 establishes the basis to incorporate industrial base considerations in the acquisition process. (This approach is further implemented in DoDI 5000.2, which TFIRE modified to formally infuse industrial preparedness planning considerations in the acquisition process.)

The key TFIRE recommendations are:

- to require achievement of economical production rates
- to require consideration of industrial base issues at DSARC Milestones I and II.

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January 5, 1982

NUMBER 5000.1



Department of Defense Directive

SUBJECT: Major System Acquisitions

References: (a) DoD Directive 5000.1, "Major System Acquisitions," (hereby canceled) 3/19/80
(b) OMB Circular A-109, "Major System Acquisitions," 4/5/76
(c) DoD Instruction 5000.2 "Major System Acquisition Procedures" (Reissuance, date TBD)
(d) through (g), see enclosure 1

A. REISSUANCE AND PURPOSE

This Directive reissues reference (a) and updates the statement of acquisition policy for major systems or major modifications to existing systems, within the Department of Defense. This Directive also implements the concepts and provisions of Office of Management and Budget (OMB) Circular A-109 (reference (b)).

B. APPLICABILITY

The provisions of this Directive apply to the Office of the Secretary of Defense (OSD), the Military Departments, the Organization of the Joint Chiefs of Staff (OJCS), and the Defense Agencies. As used in this Directive, the term "DoD Components" refers to the Military Departments and the Defense Agencies.

C. OBJECTIVE

The policies in this Directive are intended to assure the effective and efficient acquisition of major defense systems to achieve the operational mission objectives of the U.S. Armed Forces in support of National Policies and Objectives.

D. ACQUISITION MANAGEMENT PRINCIPLES AND OBJECTIVES

1. Each DoD official who has direct or indirect responsibility for the acquisition process shall be guided by the policies and objectives of OMB Circular A-109 for Major System Acquisitions.
2. Effective design and price competition for contractual requirements shall be obtained to the maximum extent practicable to ensure cost effective defense systems which are responsive to mission requirements.
3. Improved readiness and sustainability are primary objectives of the acquisition process. Resources to achieve readiness will

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receive the same emphasis as those required to achieve schedule or performance objectives. As a management precept, operational suitability of deployed weapon systems is an objective of equal importance with operational effectiveness. (The terms "operational effectiveness" and "operational suitability" are defined in DoDD 5000.3 (reference (d)).

4. Reasonable stability in acquisition programs is necessary to carry out effective, efficient, and timely acquisitions. To achieve stability, DoD Components shall:

- a. conduct effective long range planning
- b. consider evolutionary alternatives in lieu of solutions at the frontier of technology; e.g. PrePlanned Product Improvements (P³I) to reduce risk.
- c. realistically estimate, budget, and adequately fund procurement, (research and development as well as production) logistics, and manpower for major systems.
- d. plan to achieve economical rates of production, maintain surge capacity, and conduct realistic mobilization planning.
- e. develop an acquisition strategy at the inception of each major acquisition which sets forth the objectives, resources, principal management assumptions, extent of competition, proposed contract types, and program structure (e.g. development phases, decision milestones, test and evaluation periods, planned concurrency, production releases) for that specific system and tailors the prescribed steps in the major system acquisition decision making process to this strategy. When the acquisition strategy is approved by the DoD Component, changes shall be made only after assessment and consideration of the objectives of this Directive and of the impact of such changes on the program.

5. To promote efficiency in the acquisition process, authority will be delegated to the lowest levels of the organization at which a comprehensive view of the program rests. Responsibility and accountability must be clearly established. In particular, the Service Program Manager must be given authority and resources commensurate with the responsibility to execute the program efficiently. Reviews, such as those by the Defense Systems Acquisition Review Council (DSARC), are means to evaluate the information required for a decision which higher level authority has specifically reserved and not delegated to the program manager. Reviews are not ends in themselves and will not be used to request data other than that which is required as a basis for higher authority decisions.

6. A cost effective balance must be achieved among acquisition costs, ownership costs of major systems, and system effectiveness in terms of the mission(s) to be performed.

7. Cooperation with United States allies in the acquisition of defense systems will be maximized to achieve the highest practicable degree of standardization and interoperability of equipment and avoid duplication of effort.

Mobilization requirements will be a factor considered in evaluating opportunities for international cooperation. (See DoDD 2010.6, reference (e))

8. Although a proper arms-length business relationship with industry must be maintained in order to protect the public interest and to foster competition, a strong industrial base is necessary for a strong defense. The proper arms-length buyer-seller relationship should not be interpreted as adversarial by either industry or Government; and technical collaboration with industry must be maintained to achieve major system acquisition objectives and meet technological challenges. The impact of DoD acquisitions on the industrial base must also be considered both for the near term and long range implications.

E. POLICY

1. General. The provisions of this Directive and OMB Circular A-109 apply to the acquisition of major systems within the Department of Defense. The management principles and objectives in this Directive should also be applied to the acquisition of systems not designated as major. Responsibility for the management of system acquisition programs shall be decentralized except for the decisions specifically retained by the Secretary of Defense in this Directive. The program Manager should have the authority, resources, and responsibility to efficiently execute the program for which he is responsible.

2. Specific

a. Analysis of Mission Areas. As a key to a focus on planning, DoD Components, OSD, and OJCS shall conduct continuing analyses of their assigned mission areas to identify deficiencies in capability or more effective means of performing assigned tasks. From these mission analyses, a deficiency or opportunity may be identified that could lead to initiation of a major system acquisition program.

b. Alternatives to New System Development. A system acquisition may result from an identified deficiency in an existing capability, a decision to establish new capabilities in response to a technologically feasible opportunity, a significant opportunity to reduce the DoD cost of ownership, or in response to a change in National Defense Policy. Development of a new system may be undertaken only after assessment of alternative system concepts including:

- (1) Change in United States or NATO tactical or strategic doctrine.
- (2) Use of existing military or commercial system.
- (3) Modification or improvement of existing system.

c. Phases of the Acquisition Process. There are distinct phases in the acquisition of a new system. Normally, these are: concept exploration, demonstration/validation, full scale development, and production and deployment. These phases are to be tailored to fit each program to minimize acquisition time and cost consistent with the need and the degree of technical risk involved. For major system acquisitions, the Secretary of Defense will make

the decisions described in paragraph d below. The SecDef decision milestones will be tailored to match the selected acquisition strategy. In keeping with the principle of controlled decentralization, the mission need determination has been incorporated into the PPBS and the production decision has been delegated to the DoD Component, provided that established thresholds are met. DoD Components shall adhere to this principle by delegating authority to the lowest organizational level feasible. Milestone decision points shall be identified in the acquisition strategy for each major system acquisition.

d. Secretary of Defense Decisions. The Secretary of Defense will make the following decisions in the acquisition of major systems:

(1) Mission Need Determination. The mission need determination is accomplished in the PPBS process based on a Component's Justification of Major System New Starts (JMSNS) which is to be submitted with the Program Objectives Memorandum (POM) in which funds for the budget year of the POM are requested. The SecDef will provide appropriate program guidance in the Program Decision Memorandum (PDM). This action provides official sanction for a new program start and authorizes the Service, when funds are available, to initiate the next acquisition phase.

(2) Milestone I. This first SecDef major milestone decision is concept selection and entry into the the demonstration/validation phase. This decision is based on a System Concept Paper (SCP) prepared by the DoD Component. The Milestone I decision is a validation of the requirement, based upon preliminary evaluation of concepts, costs, schedule, readiness objectives, and affordability. It provides authority to proceed with the demonstration/validation phase and to develop the system sufficiently to support a Milestone II decision. A review of the acquisition strategy may be substituted for a formal Milestone I review for those programs not requiring a discrete demonstration/validation phase. The Milestone I decision shall establish thresholds and objectives to be met and reviewed at the next milestone, the acquisition strategy for the recommended concept(s) (including the nature and timing of the next SecDef decision point), and a "not to exceed" dollar threshold to carry the program through the next milestone.

(3) Milestone II. The second SecDef major decision is program go-ahead and approval to proceed with full scale development. The production decision at Milestone III is delegated to the DoD Components, provided the thresholds established at Milestone II are met. The production decision may be redelegated to the lowest level in the organization at which a comprehensive view of the program rests. The timing of the Milestone II decision is flexible and depends upon the tailored acquisition strategy approved by DoD Components and the SecDef at Milestone I. In a traditional approach, Milestone II would occur at the point where a program transitions from demonstration/ validation into full scale development. In some cases, however, it may be desirable to delay this decision until some additional development effort has been accomplished in order to provide a better definition of performance, cost, schedule, producibility, industrial base responsiveness, supportability, and testing to reduce risk and uncertainty prior to the commitment to a major increase in the application of resources toward full scale development. In the case of a delayed Milestone II decision, any full scale development contracts entered into prior to Milestone II will be written in such a manner that the program can be terminated at Milestone II at minimum cost to the

Government. Whatever timing for Milestone II is selected in the acquisition strategy, it is anticipated that both Component's and OSD reviews will be held in reasonable proximity so that program managers will not be required to pass the same milestone more than once. In any event, it is generally desirable to maintain design competition up to the Milestone II decision point, or beyond, if it is determined to be a cost effective acquisition strategy.

The Defense Acquisition Executive (DAE) will advise SecDef on all of the major milestone decisions. Normally, the DAE will be assisted by the Defense System Acquisition Review Council (DSARC) at Milestones I and II. He may call for program reviews at any time during the entire acquisition process. Program reviews are for the purpose of providing specific information to the DAE on a particular aspect of an acquisition program. They are more limited in scope than DSARC reviews and do not necessarily serve as a basis for a SecDef decision recommendation.

e. Designation of Major Systems. The Secretary of Defense shall designate those systems which are to be managed as major systems. Normally, this shall be done at the time the new start is authorized in the PDM. The decision to designate any system as major may, after consultation with the appropriate DoD Component, be based upon:

(1) Development risk, urgency of need, or other items of interest to the Secretary of Defense.

(2) Joint acquisition of a system by the Department of Defense and representatives of another nation or by two or more DoD Components.

(3) The estimated requirement for the system's research, development, test and evaluation, procurement (production); and operation and support resources. A JMSNS is required for all acquisitions for which the DoD component estimates costs to exceed \$200 million (FY80 dollars) in RDT&E funds and/or \$1 billion (FY80 dollars) in procurement (production) funds.

(4) Significant Congressional interest.

f. Affordability. (DSARC/PPBS Interface). Affordability, which is a function of cost, priority, and availability of fiscal and manpower resources, shall be considered at every milestone and during the PPBS process. The order of magnitude of resources the DoD Component is willing to commit and the relative priority of the program to satisfy the need identified in the JMSNS will be reconciled with overall capabilities, priorities, and resources in the PPBS. System planning shall be based on adequate funding of program cost. A program normally shall not proceed into concept exploration or demonstration/validation unless sufficient resources are or can be programmed for those phases. Approval to proceed into full-scale development or into production shall be dependent on DoD Component demonstration that resources are available or can be programmed to complete development, to efficiently produce, and to operate and support the deployed system effectively. Funding availability shall be reaffirmed by the DoD Component prior to proceeding into production

and deployment. To avoid creating program instability, funding changes shall not be introduced without assessment and consideration of the impact of these changes on the overall acquisition strategy for the major system to be acquired. Specific facets of affordability to be reviewed at milestone decision points are set forth in DoD Instruction 5000.2 (reference (c)).

g. Acquisition Time. Minimizing the time it takes to acquire materiel and facilities to satisfy military needs shall be a primary goal in the development of an acquisition strategy. Particular emphasis shall be placed on minimizing the time from a commitment to acquire an operationally suitable, supportable, and effective system to deployment with the operating forces in sufficient quantities for full operational capability. Commensurate with risk, such approaches as developing separate alternatives in high-risk areas, early funding to design in reliability and support characteristics, lead time reductions, through concurrency experimental prototyping of critical components, combining phases, pre-planned product improvement, additional test articles, or omitting phases should be encouraged. In those cases where combining or omitting phases are appropriate, concurrence shall be requested from the Secretary of Defense. In addition, administrative delays associated with briefings and reviews at various organizational levels shall be minimized.

h. Tailoring and Flexibility. The acquisition strategy developed for each major system acquisition shall consider the unique circumstances of individual programs. Programs shall be executed with innovation and common sense. To this end, the flexibility inherent in this Directive will be used to tailor an acquisition strategy to accommodate the unique aspects of a particular program as long as the strategy remains consistent with the basic logic for system acquisition problem solving and the principles in this Directive for business and management considerations. The acquisition strategy should normally contemplate narrowing the number of competitors to eliminate concepts no longer considered viable as the acquisition process proceeds. This narrowing of competing alternatives shall be accomplished without interrupting the remaining contracts and it need not be timed to coincide with milestone decisions. However, competition for each phase, including, where appropriate, plans for design competition in the early phases and price competition in production, shall be described in the acquisition strategy.

i. Test and Evaluation. Throughout the acquisition process, emphasis will be placed upon verifying actual performance through test and evaluation. The procedures of DoD Directive 5000.3 will be integral to all systems acquisition planning and decision-making.

j. Readiness. Readiness goals and related design requirements and activities will be established early in the acquisition process, and will receive emphasis comparable to that applied to cost, schedule, and performance objectives. Logistic supportability shall be considered early in the formulation of the acquisition strategy and in its implementation. Projected or actual achievement of readiness objectives will be assessed at each milestone. (See DoDD 5000.39, reference (f)).

3. Documentation for Milestone Decisions

a. Mission Need Determination

Justification for Major System New Start (JMSNS). Each major system acquisition program requires a JMSNS to be reviewed by the Office of the Secretary of Defense in the POM review before the new start is included in the DoD budget submission. DoD Components shall prepare JMSNS to document major deficiencies (or opportunities for improvements) in their ability to meet mission requirements when it is planned that such deficiencies be corrected by the acquisition of a major new system or a major modification to an existing system. Joint JMSNS shall be prepared to document major deficiencies in two or more DoD Components. OSD and the OJCS may also prepare JMSNS in response to mission area deficiencies. Joint and OSD/OJCS JMSNS shall recommend a lead DoD Component to the Secretary of Defense. The JMSNS is described in enclosure 2 to DoD Instruction 5000.2 (reference (c)).

b. Milestone I

System Concept Paper (SCP). The SCP provides basic documentation for use by Defense Systems Acquisition Review Council (DSARC) members in arriving at a recommendation to the Secretary of Defense. The SCP is described in enclosure 3 to DoD Instruction 5000.2 (reference (c)). The SCP will identify program alternatives based upon initial studies/analyses of design concepts; alternative acquisition strategies; expected operational capabilities; industrial base capacity; readiness, support, and personnel requirements; and cost estimates. The Test and Evaluation Master Plan (TEMP), as described in DoDD 5000.3 (reference (d)), will outline the test and evaluation program.

c. Milestone II (and Milestone III, if SECDEF decision is required)

Decision Coordinating Paper/Integrated Program Summary (DCP/IPS). The DCP/IPS summarizes the DoD Component's acquisition planning for the system's life-cycle and provides a management overview of the program. The DCP/IPS is described in enclosure 4 to DoD Instruction 5000.2 (reference (c)). The Test and Evaluation Master Plan (TEMP) as described in DoDD 5000.3 (reference (d)) will define the test and evaluation program for the full scale development phase.

d. OSD Staff Information Requirements. DoD Components' appropriate staff elements will work with the OSD staff so that OSD can maintain current visibility over matters such as cost, supportability, test and evaluation, industrial base responsiveness, and production readiness throughout the acquisition process.

e. Secretary of Defense Decision. Secretary of Defense approval of the JMSNS is accomplished in the PPBS when the major system new start is approved by the SecDef in the PDM. Changes, if any, from the DoD Component approach directed by the Secretary will be documented in the PDM. For a Joint Program JMSNS and all program Milestones, a Secretary of Defense Decision Memorandum (SDDM) documents each SecDef decision, establishes program goals and thresholds, reaffirms established needs and program objectives, authorizes exceptions to acquisition policy (when appropriate), and provides the direction and guidance to OSD, OJCS, and the DoD Components for the next phase of the acquisition.

F. RESPONSIBILITIES

1. The Defense Systems Acquisition Review Council (DSARC) shall advise the Secretary of Defense on milestone decisions for major systems and such other acquisition issues as the Defense Acquisition Executive determines to be necessary.

2. The Defense Acquisition Executive (DAE)

a. The Under Secretary of Defense Research and Engineering is designated DAE and shall:

(1) Be the principal advisor and staff assistant to the Secretary of Defense for the acquisition of defense systems and equipment.

(2) Serve as a permanent member and the Chairman of the DSARC.

(3) In coordination with the other permanent members of the DSARC:

(a) Integrate and unify the management process, policies, and procedures for defense system acquisition.

(b) Monitor and assure DoD Component compliance with the policies and practices in OMB Circular A-109, this Directive, and DoD Instruction 5000.2 (reference (c)), and DoD Directive 5000.3 (reference (d)).

(c) Ensure that the requirements and viewpoints of the functional areas are given consideration during staff and DSARC deliberations, and are integrated in the recommendations sent to the Secretary of Defense.

(d) Ensure consistency in applying the policies regarding NATO RSI for major systems.

b. The DAE is specifically delegated authority to:

(1) Designate action officers who shall be responsible for the processing of the milestone documentation and who shall monitor the status of major systems in all phases of the acquisition process.

(2) Recommend the lead Component for multi-Service acquisition programs and provide guidance as to when in the development cycle transition to single Service management will occur.

(3) Issue instructions and one-time, Directive-type memoranda in accordance with DoD Directive 5025.1 (reference (g)).

(4) Obtain such reports and information, consistent with the provisions of DoD Directive 5000.19 (reference (h)), as may be necessary in the performance of assigned functions.

(5) Conduct program reviews as appropriate.

3. The Under Secretary of Defense for Research and Engineering (USDRE) shall be responsible for policy and review of all research, engineering development, technology, test and evaluation, procurement, and production of systems covered by this Directive and shall ensure integration of the Acquisition Process and the PPBS. The USDRE shall:

a. Monitor, in conjunction with the USD(P) and the Director, Program Analysis and Evaluation (PA&E), DoD Component procedures for analysis of mission areas.

b. Coordinate review of JMSNS provided by DoD Components in the POM and determine whether major system new starts should be included in the PDM.

c. Coordinate, together with Assistant Secretary of Defense (Comptroller) Assistant Secretary of Defense (Manpower, Reserve Affairs and Logistics (MRA&L)) and Director, PA&E, the interface of the acquisition process with the PPBS.

4. The Under Secretary of Defense for Policy (USDP) is a permanent member of the DSARC and shall:

a. determine whether system requirements as defined in the JMSNS are consistent with policy and planning provision of the Defense Guidance;

b. advise the Defense Acquisition Executive on the international implications (including co-production) of any new systems development;

c. monitor, in conjunction with USDRE and Director, PA&E, DoD component procedures for analysis of mission areas.

5. The Assistant Secretary of Defense (Manpower, Reserve Affairs and Logistics) (ASD(MRA&L)) is a permanent member of the DSARC and shall:

a. Be responsible for policy on logistics, facility construction, energy, environment, safety, and manpower planning for new systems throughout their life cycle.

b. Ensure that logistics planning is consistent with system hardware parameters, logistic policies, and readiness objectives.

c. Monitor DoD Component procedures for planning and providing post production support to meet system readiness objectives.

d. Coordinate, together with the USDRE the ASD(C) and the Director, PA&E the interface of the acquisition process with the PPBS.

6. The Assistant Secretary of Defense (Comptroller) (ASD(C)) is a permanent member of the DSARC and shall coordinate, together with USDRE, ASD(MRA&L), and Director, PA&E, the interface of the acquisition process with the PPBS.

7. The Director, Program Analysis and Evaluation (PA&E) is a permanent member of the DSARC and shall:

a. Monitor, in conjunction with USDRE and USD(P), DoD Component procedures for analysis of mission areas.

b. Evaluate cost-effectiveness studies prepared in support of milestone decisions for major system acquisition.

c. Coordinate, together with USDRE, ASD(C) and ASD(MRA&L), the interface of the acquisition process with the PPBS.

8. The Chairman, Joint Chiefs of Staff (CJCS), or a representative designated by CJCS, is a permanent member of the DSARC.

9. The Service Secretary or his designee is a permanent member of the DSARC for major acquisitions involving his Service.

10. The principal advisors to the DSARC are listed in DoD Instruction 5000.2 (reference (c)).

11. The Head of Each DoD Component shall manage each major system acquisition assigned by the Secretary of Defense and shall establish clear lines of authority, responsibility, and accountability.

DoD Component Heads shall also:

a. Appoint a DoD Component acquisition executive to serve as the principal advisor and staff assistant to the Head of the DoD Component.

b. Establish a System Acquisition Review Council at the Component level to advise the Component Head on designated acquisition programs.

c. Ensure that a program manager is assigned and that a program manager's charter is approved as soon as feasible after mission need determination and resource allocation in the budget.

d. Ensure that the program manager's tenure is of sufficient length to provide continuity and management stability.

e. Establish management training and career incentives to attract, retain, motivate and reward competent program managers.

f. Provide a program manager the necessary assistance to establish a strong program office with clearly established lines of authority and reporting channels between the program manager and the Head of the DoD Component. Where functional organizations exist to assist the program manager, the relationship between the functional areas to the program manager shall be established.

g. Limit reporting requirements for the program manager to the minimum required for effective oversight.

h. Monitor major system acquisitions to assure compliance with OMB Circular A-109, this Directive, DoD Instruction 5000.2 (reference (c)), and DoD Directive 5000.3 (reference (d)).

i. Manage, when designated lead Component for multi-Service acquisitions, the program under the policies and procedures used by that Service. The program manager, program manager's office, and functional elements of each participating Service will operate under the policies, procedures, data standards, specifications, criteria, and financial accounting of the lead Component. Exceptions, as a general rule, will be limited to those where prior mutual agreement exists, or those essential to satisfy substantive needs of the participating services.

j. Designate a single major field agency, separate and distinct from the materiel developing/procuring commands and user representative commands, to be responsible for the conduct of operational test and evaluation. This agency will report the results of its independent operational test and evaluation directly to the Military Service Chiefs and Service Secretaries.

12. The Program Manager shall be responsible for acquiring and fielding (in accordance with instructions from line authority) a system that meets the approved mission need and achieves the established cost, schedule, readiness, and affordability objectives.

13. Directed Decisions by Higher Authority. When a line official above the program manager exercises decision authority on program matters, the decision shall be documented as official program direction to the program manager and a copy shall be available to the DAE. The line official shall be held accountable for the decision.

ORDER OF PRECEDENCE

This Directive and DoD Instruction 5000.2 (reference (c)) are first and second in order of precedence for major system acquisitions except where statutory requirements override. All DoD issuances shall be reviewed for conformity with this Directive and DoD Instruction 5000.2 (reference (c)) and shall be changed or canceled, as appropriate. Conflicts remaining after 90 days from issuance of this Directive shall be brought to the attention of the originating office and the DAE.

EFFECTIVE DATE AND IMPLEMENTATION

This Directive is effective immediately. Forward one copy of implementing documents to the Under Secretary of Defense for Research and Engineering within 120 days.

REFERENCES, continued

DoD Directive 5000.3, "Test and Evaluation" (date TBD)
DoD Directive 2010.6, "Standardization and Interoperability of Weapons Systems and Equipment within the North Atlantic Treaty Organization," March 5, 1980
DoD Directive 5000.39, "Development of Integrated Logistics Support for Systems and Equipments," January 17, 1980
DoD Directive 5025.1, "Department of Defense Directives System," November 18, 1977
DoD Directive 5000.19, "Policies for the Management and Control of Information Requirements," March 12, 1976

interest of the Government to do so, DoD research and development centers may be assigned development tasks to facilitate a major system acquisition. DoD research and development centers may be used as a technical arm of the program management office. Typical assignments may include actions such as studies, analysis, technology development and assessment, systems engineering, risk and cost reduction efforts, design review, development test and evaluation, and other technical tasks considered appropriate by the program manager. Care must be exercised to avoid individual or organizational conflicts of interest.

9. Industrial Resource Assurance. The capability of the industrial base to economically produce defense systems on a timely basis is a key element of the acquisition process. Required actions by industry or Government to improve industrial base responsiveness will be incorporated into the acquisition strategy. In addition to manufacturing producibility of a design, program managers should devote specific attention to the capability of the industrial base and availability of resources to meet required production acceleration and peak rates (DoDD 5000.34, reference (f). Early assessments and incremental refinements should be made to determine existing and required capacity to produce efficiently both at prime contractor and key subcontractor levels. Large acceleration rates and values should be identified by Milestone I and finalized by Milestone II in accordance with DoD Directive 4005.1 (reference (g)). Industrial resource capacity enhancement planning should be reflected in SCP and DCP/IPS documentation.

10. Facility Construction. Facilities required to support development, testing, training deployment, and continued operation of major defense systems can become critical elements in the acquisition process. Early identification and definition and continued refinement of such requirements are essential to assure that they will be programmed, funded, designed and completed in proper coordination with major defense system acquisitions. Maximum practical use should be made of existing facilities through direct use, upgrading, or modification. Lead times for programming facility construction must consider real estate acquisition and environmental requirements and the time required for design, contracting, and construction. In the case of systems supporting NATO missions, consideration must be given to current and future eligibility for NATO common funding and the technical criteria and standards which will apply to facilities funded by NATO. (DoDD 2010.6, reference (h))

11. Programming and Budgeting.

a. The R&D and procurement of major systems should be funded at levels necessary to protect the acquisition schedule established at the time the program is baselined (Milestone II). In general, only changes which are dictated by changed requirements or development problems should be made. Programming and budgeting for major system acquisition shall provide for adequate funding to support the acquisition strategy; including sufficient funding for system design and system cost competition, readiness and support, test hardware, and technical and economic risks over the entire acquisition cycle.

b. Changes which would invalidate a milestone decision must be recommended to the Defense Resources Board for explicit consideration of their impact on military capability and total resource requirement. Service

ances of the program. Proposed exceptions to applicable DoD Directive and instruction shall be identified in the acquisition strategy as it evolves. Advice and assistance should be sought from business and technical advisors and experienced managers of other major system programs.

b. The acquisition strategy is the conceptual basis of the overall plan that a program manager follows in program execution. It reflects the management concepts that shall be used in directing and controlling all elements of the acquisition to achieve specific goals and objectives of the program and to ensure that the new system satisfies the approved mission need. The acquisition strategy encompasses the entire acquisition process for the basic system, re-planned product improvements, and post production support. The strategy shall be developed in sufficient detail, at the time of issuing solicitations or the concept exploration phase, to permit competitive exploration of alternative system design concepts. Additionally, sufficient planning must be accomplished for succeeding program phases, for those considerations which involve design, competition, provisioning and support economies, and production source availability.

c. The acquisition strategy shall evolve through an iterative process and become increasingly definitive in describing the interrelationship of the management, technical, business, resource, force structure, support testing, equipment standardization, and other aspects of the program. Normally, the baselining and definition of a program will requirements (JMSNS) to functional characteristics (Milestone I) to an allocated functional baseline (Milestone II) to a production baseline (Milestone III).

d. Acquisition programs shall be executed with innovation and common sense. The flexibility inherent in this Instruction will be used to tailor an acquisition strategy to accommodate the unique aspects of a particular program, as long as the strategy remains consistent with the basic logic for system acquisition problem solving and good business and management principles, such as those identified in reference (b).

8. Participating Activities.

a. The Department of Defense shall use all appropriate participants in the acquisition process to obtain the most efficient and effective systems obtainable within available resources. Organizational entities shall include commercial organization, federally funded research and development centers, Government research and development centers, colleges, and universities to the full extent that their capabilities and expertise can contribute the the acquisition objectives.

b. Use of Government or Not-For Profit Organizations. When Government laboratories, federally funded research and development centers, educational institutions, and other not-for-profit organizations submit alternative major system design concepts for consideration, care shall be taken to exclude such proposing organizations from participating in the evaluation process. If further exploration of an alternative system design concept submitted by one of these organizations is appropriate, that concept may be made available to industry to propose in subsequent continued development stages. Where no competitive capability exists in the private sector or when it is in the best

(1) Comparison of program resource estimates with latest PPBS projections (including the extended planning annex).

(2) Identification of the relative ranking for this system and the DoD Component's other major systems in the same mission area and general time frame in the latest program or budget submission.

(3) Analysis of variation in unit cost (recurring hardware, flyaway, and procurement) with production rate (Milestones II and III if Milestone III if a SECDEF review). Analysis shall allow comparison of baseline and enhanced (projected effect of manufacturing technology, technology modernization, and producibility programs) production scenarios. Production rates for cost comparisons shall include projected surge rates reflected in acquisition plans.

(4) Identification of potential offsets necessary to provide the resources to execute the remaining phases of the program where program cost estimate provided to the DSARC exceed latest budget projections. Where joint programs are involved, offset identifications shall not be limited to the lead DoD Components.

5. Timeliness. An objective of any acquisition is the achievement of Service Operational Capability (deployment in operationally significant quantities rather than one or a few IOC units) within the time dictated by the need or threat. When technical, cost, and supportability risks are low or when the urgency to counter a threat transcends high technical, cost, and supportability risks, DoD Components should give consideration to minimizing acquisition time by planned concurrency and industrial base capacity enhancement. The degree of concurrency should be based on the extent of potential savings in acquisition time balanced against technical, cost, and supportability risks, and urgency of the mission need in each acquisition program. To achieve timely deployment, consideration may also be given to accepting system performance growth after deployment. Programs with planned concurrency shall be adequately funded at the front end and give special attention to R&M, personnel, and support requirements to balance readiness risk which could result from a shortened acquisition time. Alternative acquisition strategies for a given design concept may be proposed at Milestone I. A discussion of risks and costs associated with each strategy shall be provided. Administrative delays associated with briefings and reviews at various organizational levels shall be minimized.

6. Balanced Management Objectives. Management objectives for major system acquisitions include reduced acquisition cost, shortened acquisition time, and improved weapon support and readiness, in addition to system effectiveness. The overall objective is to field and operate defense systems which meet mission needs. An appropriate balance must be achieved among management objectives and documented in the acquisition strategy for each major system acquisition.

7. Acquisition Strategy

a. An initial program acquisition strategy shall be developed by the cognizant DoD Component for each major system acquisition when a new start is proposed. The acquisition strategy should be tailored to the unique circum-

MANAGEMENT CONSIDERATIONS

1. **Mission Analysis.** Mission analysis is any assessment of current or projected U.S. military capability to perform assigned missions. Mission analysis shall normally evaluate the interplay of threat, capability, operations concepts, survivability, sustainability, and other factors such as environmental conditions which bear on the missions of the Components of the Department of Defense. The primary objective of mission analysis is the identification of deficiencies, so that appropriate corrective action can be initiated, or technological opportunities that may be applied for improved mission effectiveness or reduced cost.

2. **Operational Requirements.** Materials, supplies, equipment and services acquired by the Department of Defense shall contribute to or support the operational requirements of the military forces in execution of missions essential to the national security objectives and military strategy. Operational requirements should be prioritized based on their effectiveness in furthering policy objectives.

3. **Long Range Planning and Program Stability.** Since most major system acquisitions extend over several budget cycles and may exceed the Five Year Defense Plan (FYDP), major acquisition programs should be nominated by the Components for the DRB designated stable programs list. Stable programs will generally not be decremented or subject to offset actions during budget preparation as a result of cuts to be distributed. Stability applies to all facets of the acquisition program and includes ancillary equipment as well as personnel required to attain full operational capability. Stable programs will be prime candidates for multi-year contracts.

4. **Affordability**

a. The ability to provide sufficient resources to execute a program in an efficient and effective manner is a fundamental consideration during DSARC and Service SARC milestone reviews. Further, the Defense Resources Board (DRB) must evaluate changes proposed in the PPBS which would invalidate earlier SECDEF decisions. Proposals to proceed into the next acquisition phase shall be accompanied by assurance that sufficient resources are or can be programmed to execute the program as directed by the Secretary of Defense.

b. The DoD Component shall describe in the JMSNS the general magnitude of resources it is prepared to commit to acquire and operate a system to satisfy the need. At Milestone I, affordability considerations shall be used as a factor in determining the selection of alternative concepts. At Milestones II and III, a favorable decision shall not be made unless the system's projected life-cycle costs, including product improvement and other modifications, are within the amounts reflected in the latest FYDP/Extended Planning Annex (FYDP/EPA) or unless compensating changes are made to other items in the defense program.

c. The DoD Component briefing presented to the DSARC at Milestones I and II shall include the following affordability considerations:

REFERENCES, Continued

- (d) DoD Instruction 7000.3, "Selected Acquisition Reports (SARs)," April 4, 1979
- (e) DoD Directive 4120.3, "Defense Standardization and Specification Program," February 10, 1979
- (f) DoDD 4120.19, "Department of Defense Parts Control Program", June 11, 1981
- (g) DoD Directive 5160.65, "Single Manager Assignment for Conventional Ammunition," November 26, 1975
- (h) DoD Instruction 5000.36, "System Safety Engineering and Management," November 6, 1978
- (i) DoD Directive 6050.1, "Environmental Effects in the United States of DoD Actions" July 30, 1979
- (j) DoD Directive 4155.1, "Quality Program," August 10, 1978
- (k) DoD Directive 3224.3, "Physical Security Equipment: Assignment of Responsibility for Research, Engineering, Procurement, Installation, Maintenance," December 1, 1976
- (l) DoD Directive 5000.3, "Test and Evaluation," December 26, 1979
- (m) DoD Directive 5000.39, "Development of Integrated Logistics Support for Systems and Equipments," January 17, 1980
- (n) DoD Instruction 5010.19, "Configuration Management," May 1, 1979
- (o) DoD Directive 5000.34, "Defense Production Management," (date TBD)
- (p) DoD Directive 5000.19, "Policies for the Management and Control of Information Requirements," March 12, 1976
- (q) DoDD 4120.21, "Application of Specifications, Standards, and Related Documents in the Acquisition Process," November 3, 1981
- (r) Military Standard 881A, "Work Breakdown Structures for Defense Materiel Items," April 25, 1975
- (s) DoD Directive 5000.28, "Design to Cost," May 23, 1975
- (t) DoD Instruction 7000.2, "Performance Measurement for Selected Acquisitions," June 10, 1977
- (u) DoD Instruction 5000.33, "Uniform Budget/Cost Terms and Definition," August 15, 1977
- (v) DoDD 4200.15 (date and title TBD)
- (w) DoDD 4005.1 (date and title TBD)
- (x) DoDD 5000.29
- (y) DoDD 3224.1, "Engineering for Transportability," Nov 23, 1977
- (z) DoD Directive 5000.37, Acquisition and Distribution of Commercial Products (ADCoP)," TBD.
- (aa) DoD Instruction 5010.12, "Management of Technical Data," December 5, 1968.
- (bb) Military Standard 143, "Order of Precedence for Selection of Standards and Specifications," 12 November 1969.
- (cc) DoD 5000.19L, Vol II, "Acquisition Management Systems and Data Requirements Control List (AMSDL).
- (dd) DoD Directive 5000.29, "Management of Computer Resources in Major Defense System," April 26, 1976.
- (ee) DoD Directive 2010.6, "Standardization and Interoperability of Weapons Systems and Equipment Within the North Atlantic Treaty Organization." March 5, 1980.
- (ff) DoDD 5000.40, "Reliability and Maintainability", July 8, 1980
- (gg) DoDD 1100.11, "Equal Employment Opportunity, Government Contracts," Aug 9, 1968

E. EFFECTIVE DATE AND IMPLEMENTATION

This Instruction is effective immediately. DoD Components shall forward one copy of implementing documents to the Under Secretary of Defense for Research and Engineering within 90 days.

Enclosures - 6

1. References
2. Management Considerations
3. Design Considerations
4. Justification for Major System New Starts (JMSNS) - Format
5. System Concept Paper (SCP) - Format
6. Decision Coordinating Paper/Integrated Program Summary (DCP/IPS)
- Format

f. Action Officers. The action officer appointed by the DAE for each major system is the lead OSD staff person in the DSARC process and must coordinate both OSD issues and DoD Component positions. Action officers may be appointed from any OSD functional organization and shall:

- (1) conduct planning meetings,
- (2) process the SCP and DCP/IPS,
- (3) present the OSD staff brief to DSARC members,
- (4) coordinate SDDMs,

(5) ensure that the comments and recommendations from all OSD offices on DSARC and Program Review related documents prepared by the Components are integrated into one coherent set of views, and that differences among OSD elements are clearly identified as issues.

g. OSD Staff - Functional elements of the OSD staff, (such as test & evaluation, cost analysis, logistics, production engineering, and standardization) will maintain continuous surveillance throughout the acquisition cycle. They will work closely with program offices and their Component staff counterparts.

h. Program Reviews.

(1) In accordance with reference (b), the DAE may call for a Program Review at any time in the acquisition of a major defense system. Program Reviews are narrower in scope and less formal than a full DSARC milestone assessment of the total program.

(2) When the DAE calls for a Program Review, the DoD Component involved shall be notified in writing by the DSARC Executive Secretary not less than 30 days prior to the Program Review: when and for what purpose the Review is scheduled; and the documentation to be provided the DAE prior to the Review (including topics to be addressed, due date, and receiving element of the OSD staff);

(3) A program review typically requires working group meetings between OSD staff elements, such as CAIG, MRA&L, T&E, R&E, and the Component and program manager's staff. In some cases, formal briefings on Military Service independent cost analyses or test and evaluation programs may be requested.

(4) Any direction resulting from a program review which changes a goal, threshold, or other direction previously approved in an SDDM, shall be documented in a new SDDM.

ation and a comprehensive summary of the program. When a Milestone III (Production Decision by SECDEF) is required a DCP/IPS shall be prepared to describe program changes since Milestone II and to establish new thresholds.

(2) Format. See enclosure (6).

3. Cost effectiveness analysis will be performed by the components to support Milestone I and Milestone II and will be provided to the DPAS&E along with the draft SCP or DCP/IPS.

4. Notwithstanding any other DoD issuance, additional requirements for information to be considered by the DSARC, beyond that required by this Instruction, shall be issued only by the DAE.

(5) Secretary of Defense Decision Memorandum (SDDM)

(a) The SDDM documents the Secretary of Defense's milestone decision, including approval of goals and thresholds for cost, schedule, performance, supportability, test and evaluation, standardization, exceptions to the acquisition process, and other appropriate direction. The SDDM may also be used, when appropriate, to document a SECDEF decision on a Joint or OSD/OJCS JMSNS.

(b) The action officer shall prepare and coordinate a SDDM to reflect revised thresholds and updated program direction resulting from threshold breaches or projected breaches reported by the DoD Component. Programming and budgeting decisions will normally allocate the resources required to implement SDDM directions. However, where a change is made by programming or budgeting decisions which offset threshold or program direction contained in the previous SDDM, the action officer shall prepare and coordinate a new SDDM within 40 workdays after submission of the Presidential Budget to Congress. In the case of Congressional direction, the SDDM shall be prepared and coordinated 40 workdays after the legislation is enacted.

e. DSARC Executive Secretary. The DAE shall designate a permanent Executive Secretary who shall:

- (1) maintain and distribute periodic status reports concerning DSARC actions.
- (2) make administrative arrangements for meetings,
- (3) assemble and distribute necessary documentation,
- (4) maintain a central reference file for current program documentation,
- (5) control attendance at DSARC meetings,
- (6) staff JMSNS and prepare POM issue papers when required, and
- (7) document DSARC recommendations to the Secretary of Defense.

(b) Scope. A Justification for Major System New Start (JMSNS) is required when the new start meets the criteria in reference (b). When the mission analysis conducted by the DoD Component results in the Component's decision to initiate a new major acquisition, the JMSNS shall define the deficiency or opportunity such that there is a reasonable probability of satisfying the need by the acquisition of a single system. The definition of a broad architecture of systems to counter projected threats in a mission area is part of the continuous analysis of mission areas rather than a part of a specific acquisition program. Hardware solutions to the need shall not be defined in the JMSNS since it is the function of the concept exploration phase to identify alternative concepts for satisfying the mission need. JMSNSs are not required for technology base programs, regardless of size.

(c) Format. See enclosure 4.

(d) Processing. A JMSNS shall be submitted not later than the POM submission in which funding is included for a major system new start. When the DAE plans to recommend that the proposed new start not be endorsed by SECDEF, a POM issue will be initiated by the DSARC Executive Secretary.

(e) Documentation of SECDEF Decisions. When a JMSNS is included in the POM and SECDEF endorses the new start as proposed, the Program Decision Memorandum (PDM) documents the endorsement. When the DoD Component's recommendation is modified, changes shall be documented in the PDM. When a Joint or OSD/OJCS JMSNS is submitted, the SECDEF decision may be documented in an SDDM.

2. Milestone I and II (and Milestone III if a SECDEF decision is required)

(a) Milestone I - System Concept Paper (SCP).

(1) Purpose. The SCP is used to summarize the results of the concept exploration phase up to Milestone I and to describe the DoD Component's acquisition strategy, including identification of concepts to be carried into the demonstration and validation phase, and reasons for elimination of other concepts.

(2) Ongoing Programs. Major system acquisitions which were initiated prior to the effective date of this Instruction and which are proposed for a delayed Milestone II decision must have an SCP, containing the appropriate acquisition strategy, approved by the DAE prior to entering the full scale development phase.

(3) Format. See enclosure (5).

b. Milestone II (and III if a SECDEF decision is required) Decision Coordinating Paper/Integrated Program Summary (DCP/IPS).

(1) Purpose. The DCP/IPS consists of two documents which provide different levels of detail for consideration by the DSARC. The DCP is a top level summary document which identifies alternatives, thresholds, and costs. The IPS will not repeat data in the DCP but will provide more specific inform-

c. Milestone Review Process

(1) Milestone Planning Meeting. When it is considered desirable by either OSD or the Component staff, an informal milestone planning meeting to identify program issues may be held before Component submission of draft documentation.

(2) Draft Program Documentation. Draft documentation shall be submitted by the DoD Component to the DAE three months before a DSARC meeting. The action officer shall ensure that copies are made available to DSARC members and advisors and to their staffs. The DAE shall transmit formal comments to the DoD Component two months in advance of the scheduled DSARC meeting. Every effort shall be made to resolve major issues before the DSARC meeting.

(3) Final Documentation Update. A final update shall be submitted by the DoD Component to the DAE 15 workdays before a scheduled DSARC meeting.

(4) Component Staff Briefings To OSD. Component staff briefings shall be conducted not later than 15 work days before a DSARC review on the Component independent cost estimate for the CAIG and on test activity, results, and plans for DDT&E. If requested by OSD, additional briefings shall be conducted on manpower and logistics activity for the DWSIG and on chemical or nuclear survivability and endurance for AE and DNA.

(5) OSD Staff Reports and Briefing to DSARC Members. The following DSARC advisors shall submit written reports to the DAE 6 workdays before the DSARC meeting: CAIG, DDT&E, DIA, DWSIG (if requested), and DNA (if requested). DSARC members will be briefed by the OSD staff 5 workdays before the DSARC meeting. A final list of issues to be addressed by the Component at the DSARC will be distributed by the Executive Secretary following this meeting.

(6) DSARC Meeting. Components are responsible for presenting program status and addressing the OSD issues at a DSARC meeting. Such presentations should not exceed one hour. The OSD staff will present its reports and will identify unresolved issues. Following these presentations, DSARC members will determine in executive session the recommendations to be made to the Secretary of Defense.

(7) Post DSARC Action. The SDDM shall be issued to the DoD Component within 15 workdays following the DSARC meeting.

d. Program Documentation

Program documentation for major defense systems shall be in accordance with the instructions below. Data elements shall be standardized in accordance with DoD 5000.11 (reference (d)) and DoD 5000.12-M (reference (e)).

(1) Mission Need

(a) Purpose. Major System new starts are considered in the OSD Program Objective Memorandum (POM) review on the basis of justifications provided by DoD components.

D. PROCEDURES

1. Major System Designation. The Secretary of Defense shall designate certain acquisition programs as major systems in accordance with reference (b). The Defense Acquisition Executive (DAE) may recommend candidate programs to the Secretary of Defense at any point in the acquisition process. The DAE is authorized to withdraw the designation of "major systems" when changing circumstances dictate but shall advise the Secretary of Defense before such action is taken.

2. Major System Listings. The Executive Secretary of the Defense System Acquisition Review Council (DSARC) shall update and distribute a list of currently designated major systems at least quarterly.

3. Defense Systems Acquisition Review Council (DSARC). The DSARC, as the top level DoD corporate body for system acquisition, shall provide advice and assistance to the Secretary of Defense. The following subparagraphs set forth organizational and procedural elements of the DSARC process.

a. DSARC Membership

(1) Members of the DSARC are identified in reference (b).

(2) The appropriate Deputy Under Secretary for Strategic or Theater Nuclear Forces; Tactical Warfare Programs; or Communications, Command, Control & Intelligence; the Deputy Under Secretary for Acquisition Management; the Director, Defense Test & Evaluation; and the Chairman, Cost Analysis Improvement Group, are permanent advisors to the DSARC and will participate in all DSARC reviews.

(3) The DAE may request ad hoc advisors such as the Assistant to the Secretary of Defense (Atomic Energy), Deputy Under Secretary (International Programs and Technology), Deputy Under Secretary (Research & Advanced Technology), Director (Weapons Support Improvement Group), Director (Defense Intelligence Agency), and Director (Defense Nuclear Agency), to participate in DSARC reviews which include issues requiring expert advice in one or more of the areas represented by them.

b. DSARC Reviews. The DAE is responsible for convening formal meetings to facilitate the decision process. DSARC reviews shall normally be held at Milestones I and II. As long as a program is managed within the goals and thresholds established at Milestone II, no further review by the DSARC is contemplated. If thresholds are breached the DAE shall be notified, and a program review or another DSARC review may be required.

(2) The Secretary of Defense may, upon the recommendation of the DAE, choose to make his decision and issue a Secretary of Defense Decision Memorandum (SDDM) without a formal council review when there are no substantial issues.



DRAFI

NUMBER 5000.2

Department of Defense Instruction

SUBJECT: Major System Acquisition Procedures

References: (a) DoD Instruction 5000.2, "Major System Acquisition Process," March 19, 1980 (canceled hereby)
(b) DoD Directive 5000.1 "Major System Acquisitions," March 19, 1980
(c) DoD Directive 5000.35, "Defense Acquisition Regulatory System," March 8, 1978
(d) through (kk), see enclosure 1

A. PURPOSE

This Instruction reissues reference (a) to provide revised procedures for Department of Defense use in implementation of reference (b).

B. APPLICABILITY

The provisions of this Instruction apply to the Office of the Secretary of Defense (OSD), the Military Departments, the Organization of the Joint Chiefs of Staff (OJCS), and the Defense Agencies. As used in this Instruction, the term "DoD Components" refers to the Military Departments and the Defense Agencies, and the term "Military Services" refers to the Army, Navy, Air Force, and Marine Corps.

C. POLICY

1. The procedures in Section D shall be used for the review and direction of major defense system acquisitions.

2. Enclosures 2 and 3 contain guidance concerning acquisition improvement policy considerations to be applied in major defense system acquisitions.

3. Enclosures 4, 5, and 6 contain the format for program documentation.

4. DoD regulations, directives, and instructions that relate to the acquisition process are part of the Defense Acquisition Regulatory System (DARS) as stipulated by DoD Directive 5000.35 (reference (c)). The DARS established uniform policies and procedures for the acquisition of supplies and services by the Department of Defense. Program managers shall plan acquisition programs in accordance with the functional guidance in the DARS.

5. The provisions of DoD Directive 5000.1 (reference (b)) and this Instruction are first and second order of precedence for major system acquisition except where statutory requirements override. Any Department of Defense issuance in conflict with reference (b) or this Instruction shall be changed or canceled. Conflicts remaining after 90 days from issuance of this Instruction shall be brought to the attention of the originating office and the DAE.

DRAFT

Revision of DoD Instruction 5000.2

(Major Systems Acquisition Procedures)

This implementing instruction was under revision as a result of the Carlucci initiatives. TFIRE proposed a number of recommendations to the instruction to implement recommendations of the Defense Science Board and others. These recommendations had, in general, urged that IPP and industrial base considerations be integrated in the acquisition process.

The key TFIRE recommendations are:

- To add goals and thresholds for industrial base issues to the DSARC process. The program manager is now clearly responsible for managing the industrial base factors which affect his program.
- To require that the effect of variations in production rate be clearly defined and presented to the DSARC principals
- To require that any need for IPP funding be clearly defined and reported to the DSARC principals, along with projections of the impacts of not providing such funding
- To require the establishment of surge requirements for all programs. The decision on whether or not to fund surge capacity can then be a rational, documented decision of the DSARC process rather than an afterthought of the production decision
- To define the method by which the industrial base decisions will be made as an "Industrial Resource Analysis" (which is further described in DoDD 5000.34).

These inputs are consistent with the TFIRE changes to DoDD 4005.1 and DoDI 4005.3. The result of the changes in these two families of directives/instructions is a top-to-bottom description of IPP responsibilities and the relationship of IPP and industrial base concerns to the acquisition process.

Secretaries must explain and justify to the Defense Resources Board differences between program baselines established at Milestone II and the quantity and funding in the program or budget under review.

12. Estimates. The validity of decisions reached at each milestone depends upon the quality of cost, schedule, performance, and supportability estimates presented at the milestone reviews. Although there is considerable uncertainty early in the acquisition process, every effort must be made to use the best available data and techniques in developing estimates. Bands of uncertainty shall be identified for point estimates. Broad bands of uncertainty shall be expected early in the acquisition process, with smaller bands developed as the program matures and uncertainty decreases. Traceability of successive cost estimates, to include adjustment for inflation and to segregate estimating error from program changes, shall be maintained starting with program cost estimates approved at Milestone I.

a. An initial life cycle cost (LCC) estimate structured with all cost elements encompassed in the definition of affordability, shall be prepared during the concept exploration phase for consideration at Milestone I. An updated life-cycle cost estimate shall be provided for each subsequent milestone.

b. Milestone I cost, schedule, performance, and supportability thresholds shall not inhibit tradeoffs among these elements by the program manager in developing the most cost-effective solution to the mission need.

c. At Milestone II, firm design-to cost requirements shall be established for the system or systems selected. For programs proposing Milestone II after the beginning of full scale development, the goals and thresholds established at Milestone I shall reflect the fact that full scale development will be initiated without review or adjustment prior to the planned occurrence of Milestone II. Program accomplishments shall be evaluated against cost, schedule, and supportability goals with the same rigor as the evaluation of technical performance.

13. Goals and Thresholds. Goals and thresholds shall be proposed by the Component and approved by the Secretary of Defense for cost, schedule, performance, readiness, and supportability. Goals are values which will enable the new system to fully satisfy mission needs. Thresholds are values which describe a minimum performance level or a maximum expenditure of resources for a new system. Variances between goals and thresholds shall reasonably reflect the degree of risk in an acquisition program at each milestone. Threshold breaches require a reassessment of the program in terms of the mission need and prioritization among other acquisition programs. Program managers are responsible for reporting actual and projected threshold breaches promptly to line officials and the DAE. Following this initial report, the DoD Component shall provide the DAE with an assessment of the problem, a description of the action to be taken to resolve the problem and, if required, a recommendation to establish new threshold values. Approved changes to thresholds shall be documented in a SDDM.

14. Joint Programs. When system acquisition programs involve more than one DoD Component, the SDDM shall specify the lead DoD Component and provide explicit guidance on the responsibilities of the participating DoD Components, including threat support. The lead DoD Component shall establish the program's objectives by promulgating a program charter after coordination with the other participating DoD Components. Acquisition policies and procedures established by the Lead Components shall be followed. The Lead Component shall conduct internal reviews as required with the participation of the other Components. This will reduce the extent of formal reporting as well as nonrecurring needs for information.

15. International Defense Cooperation Programs: DoD Components shall take action on the following areas and report progress at all milestone reviews:

a. NATO Rationalization, Standardization and Interoperability (RSI) Program. See DoDD 2010.6 (ref h).

(1) Consider NATO doctrine and NATO member threat assessment. In development of JMSNS, mission needs of NATO members shall be considered.

(2) During the evaluation of alternative system concepts, the DoD Component shall consider all existing and development NATO member systems that might address the mission need. Identify any performance characteristics that cannot be harmonized with U.S. requirements or other constraints which preclude adoption of a NATO member system. Determine testing requirements for systems recommended for further development or acquisition.

b. Other International Programs and NATO RSI programs:

During the evaluation of alternative system concepts, the DoD Component shall:

(1) Consider all existing and developmental systems of friendly nations that might address the mission need.

(2) Determine whether a waiver of "Buy American" restrictions is appropriate.

(3) Develop plans for further international cooperation in subsequent phases of the acquisition cycle for items such as cooperative development, coproduction, subcontracting, and cooperative testing or exchange of test results.

(4) Recommend U.S. positions on third-country sales, recoupment of research and development costs, or sharing research and development costs, and release of technology.

(5) In subsequent phases of the acquisition cycle, expand and refine plans for international cooperation and develop plans for host nation initial or joint logistics support, if applicable.

16. Threat Definition. The effectiveness of a proposed weapon system in its intended threat environment is a fundamental concern in the acquisition process and shall be considered by the Components from the outset of an acquisition program. DIA will validate the intelligence used by the Components to define the threat.

17. Alternative Concept Solutions. Alternative concept solutions to the mission need shall be obtained competitively unless the Secretary of Defense, in approving the program initiation, has approved pursuing a single concept. The widest possible range of acquisition and support alternatives to satisfy the mission shall be considered. Foreign contractors and subcontractors shall be considered when not prohibited by National Disclosure Policy. At a minimum, solicitations shall outline the need in mission terms, schedule objectives and constraints, system cost objectives, operating, supportability, and deployment constraints. Evolutionary alternatives which use a low risk approach to technology (such as pre-planned product improvement) shall be considered if it is determined that a new system must be developed.

18. Economical Production Rates. In order to conserve resources, the acquisition strategy shall include plans for economical rates of production before any commitments are made for new production facilities. Planned rates must be high enough to use existing production facilities economically to the maximum extent practicable.

19. Test and Evaluation. DoD Components shall structure an effective test and evaluation program and provide an evaluation of the planned and completed development and operational T&E programs at major program milestones in accordance with the criteria specified in DoDD 5000.3 (reference (i)). DDT&E will monitor test to progress on a continuous basis throughout the acquisition process and report his independent assessment to the DAE and the SECDEF as required. Production decisions will be based on completion of sufficient operational test and evaluation to estimate operational effectiveness and suitability.

20. Cost Analysis. DoD components shall conduct an independent cost analysis of program manager's cost estimates at major program milestones and for specified program reviews. These analyses will be conducted and the results presented to the OSD/CAIG in accordance with the provisions of DoDD 5000.4 (reference (j)).

21. Competition. Competition should be introduced in the Concept Exploration phase and maintained throughout the acquisition cycle as long as economically beneficial. The potential for competition should be carefully protected throughout the acquisition cycle, including the production phase. When the acquisition strategy contemplates competition in the production phase, data rights, directed licensing prerogatives, royalty arrangements, and other contractor commitments needed to permit continued competition shall be obtained as early as possible in the program. Commitments to enhance industrial base capability shall permit continued competition to the maximum extent practicable. In addition, both the government and its contractors shall consider component break-out throughout the acquisition cycle to enhance competition. Techniques and procedures that result in cost auctioning between prospective contractors or technical transfusion prior to competitive source selection are prohibited.

22. Prioritization of Objectives.**a. Description of Needs.**

Work statements, standards, and specifications to describe the Government's needs shall be consistent with the program phase (operational requirements for concept exploration, system specification for demonstration and validation; development specifications for full scale development; production, process, and material specifications for production) and shall include objectives such as unit production cost, reliability and maintainability, and readiness and support characteristics (including manpower targets).

b. Prioritization and Incentives.

Contract incentive provisions should reflect prioritization of government objectives. As a normal course of action, appropriate contract performance clauses should be used to incentivize contractors to achieve the government's requirements and objectives contained in the contract statement of work. These requirements should include readiness and support parameter as well as other primary program objectives. Contract incentives should be employed for these parameters unless the basic program strategy is not consistent with the structuring of a satisfactory incentive arrangement or the program phase makes it impractical.

c. Specification and Standards.

In the early phases of a program, specifications and standards shall normally be written in terms of performance and functional requirements. The number of mandatory specification and standards included in a contract shall be limited to essential requirements. Advisory specifications and standards which are not contract requirements shall be identified as non-mandatory. Government specifications and standards should be tailored in their applications, as described in DoDD 4120.21 (reference (k)) and should, where practical, reflect acceptable commercial products and practices (reference DoDD 5000.37, reference (l)). When appropriate, acceptable voluntary (non-government) standards should be used see DoDD 4120.3 (reference (m)) in preference to government specifications and standards.

23. Pre-Proposal Briefings and Draft Solicitations. Contracting officers and program managers should conduct orientation briefings for all interested participants and encourage industry to comment on drafts of solicitations. The objectives are to remove inhibitors to innovative solutions and to achieve system objectives efficiently and effectively.

24. Management Information. Management information shall be limited in all areas of activity to information essential for decision making and effective control. Normally, the required information shall be provided from the same data base used by the contractors for management decision making. A realistic work breakdown structure that is limited to the minimum number of levels necessary shall be developed for each program as a framework for planning and assignment of responsibilities, reporting progress, and as a data base in making cost estimates for other systems. A configuration management plan, that is consistent with the work breakdown structure, shall be developed for each program.

25. Selected Acquisition Reports (SAR). SARs shall be submitted for major systems in accordance with DoD Instruction 7000.3 (reference (n)). The SAR baseline (Development Estimate) shall be extracted from the goals approved in the SDDM at Milestone II.

26. Socioeconomic Program Implementation. Government socioeconomic programs should be considered in the system acquisition process. Particular emphasis should be placed on contracting with small and disadvantaged business firms. (See DoDD 1100.11, ref. (o)).

27. Command and Control (C²) Systems.

a. The types of systems which augment the decision-making and decision executing functions of operational commanders and their staffs in the performance of command and control require a tailored acquisition strategy. The principal characteristics of such systems are: (1) acquisition cost normally is software dominated; (2) the system is highly interactive with the actual mission users and is highly dependent on the specific doctrine, procedures, threat, geographic constraints, and mission scenarios of these users; and (3) these systems are characterized by complex and frequently changing internal and external interfaces at multiple organizational levels, some of which may be inter-Service and multi-national.

b. The use of pre-planned product improvement (P³I) is a procedure highly appropriate to command and control systems and should be considered where appropriate. This is an adaptive, incremental approach where an initial, relatively quickly fieldable "core" (an essential increment in operational capability) is acquired initially. This approach includes: (1) a description of the overall capability desired; (2) an architectural framework where evolution can occur with minimum subsequent redesign; and (3) a plan for evolution that leads towards the desired capability.

c. Programming, budget approval, and acquisition management shall be tailored to encourage and enable early implementation and field evaluation of a "core" system. Subsequent increments must be based on continuing feedback from operational use, testing in the operational environment, evaluation and (in some cases) application of new technology. Operational and interface requirements and operational utility criteria should be evolved with the participation of actual mission users (or lead user and appropriate user surrogate for multi-user systems). There must be regular and continual interaction with developers, independent testers and logisticians.

d. The user shall support the independent test and evaluation agency in determination of readiness for operational use of the "core" system and work closely with the development activity and independent tester in evaluation of subsequent increments of new technology. A centralized facility should be used to accomplish post deployment software support of fielded increments under centralized configuration management. Consideration shall be given to the use of existing commercial equipment, related system software and firmware, and contractor maintenance (with warranties) whenever logistic, interoperability, readiness considerations, and field conditions permit it.

e. Those elements of command and control systems which must survive and endure in strategic or theater nuclear warfare shall be at least as survivable as the weapon system they directly or indirectly support. A proper mix of survivability techniques must be applied. Existing military and commercial hardware, software, and procedures should be used only if it can be demonstrated that they can be protected against and made resistant to wide-area threats such as jamming, spoofing and electro-magnetic pulse and that they can provide reasonable functional/system/path redundancy against direct attack, sabotage, etc. Interoperability and battlefield sustainability will be key considerations.

f. The procedures described above are equally applicable to similar non-major command and control systems.

DESIGN CONSIDERATIONS

1. Threat. System performance in the projected operational threat environment is a fundamental concern of the acquisition effort. For each major system, a System Threat Assessment Report (STAR) will be prepared by the DoD Component intelligence organization, validated by DIA, and provided to the program manager to support analyses leading to Milestone I. The STAR will be updated prior to subsequent Milestones. An interactive analysis, a study of the system-threat interaction, will be conducted by the DoD Component before Milestone I and updated in greater detail before any subsequent milestones. The STAR will serve as the basic intelligence input to the interactive analysis, supplemented by other validated intelligence as necessary. One output of the interactive analysis will be an assessment of the ability of the US system to perform its intended mission in the projected operational threat environment. Another output will be the determination of Critical Intelligence Parameters (CIPs), those threat parameters--such as the numbers, types, mixes, characteristics, or tactical uses of projected enemy systems--that are most critical to the effectiveness of the US system. These CIPs, the key intelligence questions for the program, will be used to focus subsequent DSARC threat assessments and will be provided to DIA through the DoD Component intelligence organization. The Director, DIA, will validate threat data used in the program, review the CIPs and concentrate intelligence resources on them, alert DSARC members in a timely manner to significant developments in the threat, and report on intelligence matters in writing to the DAE three workdays before a DSARC Milestone meeting. The DoD Component will confirm the effectiveness of the US system in its intended operational threat environment at DSARC Milestone meetings.

2. Operational Concept. The operational concept specifies how the system shall be integrated into the force structure and deployed and operated in peacetime and wartime to satisfy the mission need. It establishes target readiness and activity rates and includes the requirements to be used in integrated logistics support planning. An initial operational concept and system readiness objective must be developed by Milestone I for each alternative and finalized by Milestone II. The operational concept and system readiness objective shall be maintained throughout the program.

3. Pre-Planned Product Improvement. The concept of pre-planned product improvement (P³I), the orderly, time phased introduction of incremental system capability to accommodate projected changes in threat or to reduce risk in initial fielding of the system, will be employed as an integral part of the program acquisition strategy. P³I is ideally applied to new programs. However, it is also applicable to ongoing systems, i.e., those in development or being produced for inventory. P³I modification will adhere to the same system acquisition policy, procedures, budget, and milestone decision principles and constraints as the basic system. P³I efforts should correspond to clearly defined performance levels, readiness and sustainability levels or changes in the military threat. P³I should be pursued when it is clearly established that its application will reduce risk, acquisition time, or overall cost, and will not be used to artificially extend the development effort or correct deficiencies encountered in attaining initially specified system performance. The basic design of the system will anticipate Pre-Planned Product Improvements (P³I) which are identified in the military requirement documents and subsequently contained in the acquisition

strategy and confirmed at milestone decisions. Provisions will include structure, space, weight, moment, power, air conditioning, and other accommodations to facilitate production incorporation and retrofit and minimize operational and logistic support support disruption.

4. Standardization and Interoperability in Engineering Design.

a. Acquisition of equipment to satisfy mission needs must include consideration of intraservice and interservice standardization and interoperability. When feasible, military operational needs for material will be satisfied by the use of commercial products or existing military equipment and designs. If a need can be satisfied only through new development, see reference (m).

b. Equipment procured for the use of personnel of the Armed Forces of the United States stationed in Europe under the terms of the North Atlantic Treaty should be standardized or at least be interoperable with equivalent equipment of other members of NATO, see reference (h).

c. Standardization practices shall be applied during the demonstration and validation phase and the full-scale development phase to reduce cost of development, production and operational support. Existing subsystems, equipment, components, parts, and materials and standards (including line replaceable units, major components and ground support equipment) which are common to other weapons systems and available in the inventory shall be considered to enhance operational readiness. Standard design concepts and practices shall be applied to enhance quality, reliability, maintainability, supportability, and life-cycle cost but shall not compromise essential performance or excessively inhibit the application of new technology and innovative, advanced design. A standardization program, including a parts control program, shall be applied in accordance with methods and objectives described in reference (l) and DoD Instruction 4120.19 (reference (p)).

5. Quality. Quality shall be a design requirement together with cost, schedule, and performance. DoD Components shall structure an effective quality program in accordance with the criteria specified in DoDD 4155.1 (reference (q)) to ensure that the requisite quality is designed and built into major defense systems. Quality design reviews and quality assessments shall be performed. A continuous interface between the program management office and the quality assurance community shall be maintained throughout the acquisition process.

6. System Readiness, Support, and Personnel Resources to achieve readiness will receive the same emphasis as those required to achieve schedule or performance objectives. Support and personnel considerations shall be design requirements. Program managers shall be responsible for the readiness of their systems and have visibility of, and a voice in, support resource funding. A comprehensive plan for post production support shall be developed prior to production phase out. Requirements for acquisition of integrated logistic support ILS are in DoD Directive 5000.39 (reference (r)).

a. System Readiness. System readiness goals, to be achieved at early fielding and at a maturity, will be established early in development. The approach to achieve these goals must be included in the acquisition strategy. Readiness goals will be defined in such a way that they can be quantitatively related to measurable hardware R&M characteristics, and to manpower and logistic resource requirements (spares, test equipment, etc.). Such goals shall be relatable to comparable operational goals. Both peacetime and wartime goals shall be included.

b. Support. Integrated Logistic support plans and programs shall be structured to meet peacetime readiness and wartime system employment objectives tailored to the specific system. Readiness, support cost, and personnel drivers of current systems shall be analyzed to identify potential areas of improvement. These activities shall be accomplished prior to Milestone I when concept selection is made. Innovative support and personnel concepts to reduce critical support and personnel problems shall be considered and evaluated for their impact by both DoD and industry. Tentative support related design parameters shall be based on quantitative analysis and established at Milestone I. Firm goals will be established no later than the beginning of full scale development and verified or adjusted before the production decision, based on early operational test data. They shall be readjusted based on follow-on T&E. A major planning step will be development of an integrated post production support plan for the remaining life of the system with adequate lead time prior to the end of production.

c. Personnel and Training. New systems shall be designed to minimize manpower (numbers, grades, specialty, and skill levels) needed. Service studies projecting personnel skill level availability to meet manpower requirements shall be included at program initiation as constraints in system design and shall be integrated with human engineering design criteria to form the basis of initial operating and support concept studies and refined as system development progresses, to form the basis for crew station and maintenance design as well as personnel and training requirements, training devices and simulator design, and other planning related to manpower and personnel. Goals and thresholds for manpower numbers and skill levels shall be established and evaluated in T&E. Plans for training shall consider tradeoffs conducted among job aids, formal training, on-the-job training, unit training, and training simulators. Each program shall develop a cost-effective plan for attaining and maintaining the personnel proficiency needed to meet wartime mission objectives. Such planning shall consider provisions for unit conversion to the fielded system and training of reserve component personnel.

7. Reliability and Maintainability (R&M). Goals and thresholds shall be proposed in the DCP at Milestone II for system R&M parameters directly related to operational readiness, mission success, maintenance, manpower cost, and logistic support cost. R&M goals and thresholds shall be defined in operational terms and shall include both contractor furnished equipment (CFE) and government furnished equipment (GFE) elements of the system. Refer to DoDD 5000.40 (ref. (s)). Maintenance requirement shall be defined for the actual environmental conditions the system is subject to and with expected maintenance personnel's skills experience and training.

a. R&M goals and thresholds shall be realistically achievable in service. Normally, operational R&M deficiencies shall be precluded by sufficient front end funding to design appropriate R&M characteristics into CFE, by careful selection of GFE, and by tailoring of R&M-related operating and support concepts, policies, and planning factors.

b. The R&M thresholds recommended at Milestone II shall be the minimum operational values acceptable to the DoD Component. Thresholds approved in the SDDM at Milestone II shall be achieved before the production decision.

c. R&M growth shall be predicted and graphically displayed in the IPSs prepared for Milestone II. The SDDM shall include threshold values at interim review points (see reference (s)). A threshold breach shall be reported at these points if the threshold values are not achieved.

d. Resources shall be identified for incorporation and verification of R&M design corrections during full-scale development and initial deployment. Assessment of current R&M values and timely corrective action are required until all R&M thresholds approved at Milestone II have been achieved.

8. Deployment Requirements. Transportability shall be a system selection and design factor. The transportability of individual systems and components and units equipped with such systems in programmed military and Civil Reserve Air Fleet aircraft or other transportation modes shall be evaluated. Tradeoffs between transportability and combat effectiveness may be appropriate. Both inter-theatre and intratheatre transportability shall be considered. (Reference DoDD 3224.1, Ref (t)).

9. System Safety. System safety engineering and management programs shall be in accordance with the criteria and procedures in DoD Instruction 5000.36 (reference (u)) to ensure that the highest degree of safety and occupational health, consistent with mission requirements and cost effectiveness, is designed into DoD systems.

10. Physical Security. Physical security requirements shall be incorporated into the design of any system in which security of the system or of its operating or supporting personnel is essential to the readiness and survivability of the system. Deployment of the physical security subsystem shall take into account the requirements of DoD Directive 3224.3 (reference (v)).

11. Nuclear and Chemical Hardness, Survivability and Endurance. Nuclear and chemical warfare hardness, survivability, and endurance features shall be included in the design, acquisition and operation of systems that must perform a critical mission in a nuclear or chemical environment. The detailed approach to nuclear or chemical warfare survivability and endurance shall be documented on Nuclear and Chemical Hardness, Survivability, and Endurance Plan as outlined in DoDI xxxx.xx, "Nuclear Hardness, Survivability, and Endurance" (See reference (w)).

a. The requirements for survivability and endurance will be explicitly included in resource allocation and management documentation.

b. The levels of survivability and endurance will be quantified, using nuclear environment criteria.

c. These levels will be validated, wherever possible, through a cost-effective combination of underground nuclear testing, simulation testing, and analysis.

d. The acquisition phase will include the development of a cost-effective Hardness Maintenance/Hardness Surveillance program to support the operational phase of life cycle survivability and endurance.

f. The Component will inform the appropriate DUSDRE if hardening, survivability or endurance requirements for critical systems are waived or if funding in these areas is inadequate.

12. Test and Evaluation. Because of the need to reduce acquisition time, test information should be obtained as early as possible in the acquisition cycle. To expedite collection of the test information, funding of a sufficient quantity of test hardware should be secured early in development. The adequacy of funding for test hardware will be closely examined prior to and at milestone, program, and budget reviews. Early and imaginative planning (including the use of simulators and laboratory testing) will be required and should be reflected in the Test and Evaluation Master Plan (TEMP). T&E shall be accomplished as early as practical to ensure that progress toward achieving established goals is adequately demonstrated to support the level of commitment required at each program milestone. Production decisions must be supported by sufficient operational test and evaluation to estimate operational effectiveness, logistics supportability and suitability. The planning, conduct, and reporting of T&E programs by DoD Components should be accomplished in accordance with the provisions of reference (i).

13. Production Planning. From the early phases of the program, consideration shall be given to the costs of production, including total government investment required to ensure adequate production facilities, availability of critical materials, production capability, and price competition (see DoDD 5000.34, reference (f)). Affordability must be considered in production planning. The program manager shall consider means to increase the possibilities for competition during production. When the program requires production of conventional ammunition, early coordination is required with the single manager for conventional ammunition to ensure that the ammunition production plan considered at Milestone II can be executed. Refer to DoD Directive 5160.65 (reference (x)). Economical rates of production shall be a primary objective of production planning from the outset of an acquisition program. Economies of scale, industry capability (including that of subcontractors and suppliers), facility requirements, and required surge capability (see DoDD 4005.1, reference (g)) shall be considered. Alternatives to improve production efficiency and reduce unit cost should also be considered. Government investment alternatives to provide incentives for industrial capacity enhancement are described in DoDD 4200.15 (reference (y)). Production readiness reviews shall be conducted prior to a production decision.

14. Computer Resources. Acquisition of embedded computer resources for operational military systems (including command and control systems) shall be managed within the context of the total system in accordance with DoDD 5000.29 (reference (z)).

a. Requirements for interfaces between computers and plans to achieve that interface must be identified early in the life cycle. Plans for software development, standardization, documentation testing, and update during deployment and operation require special attention.

b. Computer resource planning shall be accomplished before Milestone II and continued throughout the system life cycle. Computer resources support elements shall be considered in life cycle cost estimates.

c. Computer hardware and software shall be specified and treated as configuration items. Baseline implementation guidance is contained in DoD Instruction 5010.19 (reference (aa)).

15. Data Management. Technical data required of defense contractors shall be identified by the government concurrently with those requirements in military specifications and standards (applied in the contracts) which generate such data. For the application of technical data requirements in the acquisition process refer to DoD Directive 4120.21 (reference (k)); DoD Instruction 5010.12 (reference (bb)); and DoD 5000.19L, Vol II (reference (cc)). Reporting burdens shall be minimized. The contractor's internal data base shall be validated and used where possible to provide required information. Contractor data products should be used where possible as substitutes for DoD required data items.

16. Metric Units of Measurement. The metric system of measurement shall be considered as prescribed in DoDD 4120.18 (reference (dd)).

17. Electromagnetic and Other Spectrum Allocation. Planning and coordination for spectrum allocation, compatibility, and use with other systems having related spectra shall be conducted as early as possible for all systems involving intentional radiation or reception of electromagnetic energy, optical energy, acoustic energy, or other types of energy. Where a major system is being acquired for NATO use, electromagnetic frequency allocation shall consider NATO fielded equipment and include NATO organizations for coordination.

18. Energy. The major consideration shall be minimizing the cost of system energy use and the substitution of other energy sources for petroleum. Refer to DoDD 4140.43 (reference (ee)).

19. Environment. Environmental consequences of system selection, development, production, and deployment shall be assessed at each milestone, and environmental documentation prepared in accordance with DoD Directive 6050.1 (reference (ff)).

JUSTIFICATION FOR MAJOR SYSTEM NEW START (JMSNS)
FORMAT

Prepare JMSNS in the format shown below. Do not exceed 3 pages, including annexes. Reference supporting documentation.

MISSION

1. **Mission Areas.** Identify the mission areas addressed in this JMSNS by numbers and title.

2. **Mission Element Need.** Briefly describe the nature of the need in terms of mission capabilities required and not the characteristics of a hardware or software system.

THREAT OR BASIS FOR NEED

Summarize the basis for the need in terms of an exploitable technology or in terms of non-threat related factors, when appropriate. When threat is the sole or partial basis of the need, components shall prepare threat statements to assess projected enemy capabilities which may produce or relate to the mission need. The threat statement shall be referenced in the JMSNS and forwarded to DIA for validation. DIA will furnish the validated threat statement to USDRE.

If nuclear survivability and endurance are required mission capabilities, include an explicit statement of this fact. When the need is based on exploitation of developing technology, describe the benefits to mission performance. When an evolutionary development or preplanned product improvement concept is considered appropriate to meet stepped requirements or anticipated changes in threat or because of technological risk, specify the priority to be offered system growth potential.

EXISTING AND PLANNED CAPABILITIES TO ACCOMPLISH THIS MISSION

Briefly summarize the existing and planned DoD or Allied capabilities to accomplish the mission. This must not be a narrow, one-Service view when looking across a multi-Service or an overlapping mission area, such as air defense. Reference existing documentation, such as force structure documents.

ASSESSMENT OF NEED

The most important part of the JMSNS is the evaluation of the ability of current and planned capabilities to cope with the projected threat. Base the evaluation on one or more of the following factors:

1. Deficiency in the existing capability, such as excessive manpower, logistic support requirements, ownership costs, inadequate system readiness or mission performance.

2. Exploitable technological opportunity.

3. Force size or physical obsolescence of equipment.

4. Deficiencies in the survivability (nuclear, conventional, chemical, laser, electromagnetic warfare, etc.) or endurance of existing systems.

E. CONSTRAINTS

Identify key boundary conditions for satisfying the need, such as:

1. Timing of need.

2. Relative priority within the mission area.

3. Logistics, survivability, safety, health, energy, environment, and man-power constraints.

4. Standardization or interoperability with NATO, and among DoD Components.

5. Potentially critical interdependencies or interfaces with other systems, and technology or development programs.

6. Industrial base improvements and/or critical materials required, if any.

F. ACQUISITION STRATEGY

Outline the acquisition approach contemplated in the initial acquisition strategy. Include as a minimum:

1. The order of magnitude of resources the DoD Component is willing to commit to satisfy the need. This resource estimate is intended to serve as a frame of reference and will not be considered a threshold.

2. Approach to concept exploration, P³I, tailoring of the strategy to accommodate unique program aspects.

3. Extent of design competition contemplated in subsequent phases.

4. Timing of Milestone I.

5. Approach to reduction of support risk.

6. Strategy for constraining cost growth in production, maintenance, and operation.

Estimated Other₃ Resources
 Requirements
 During Development
 During Production
 Industrial Resource Capacity Cost

OPERATING AND SUPPORT

O&M
 MILPERS
 Procurement⁴
 Total Operating and Support
 Cost

Total Life Cycle Requirements

- 1 Definitions should be in accordance with reference (hh).
- 2 Equal to Weapon System Cost as defined in reference (hh); for Shipbuilding, Outfitting and Post Delivery Costs will be included.
- 3 Other Life Cycle related costs (i.e., Installation, Project Manager Office, Civilian Salaries, etc.) funded by other appropriations; e.g., O&M & MILPERS during Development and/or Production phase. Also, Production Base Support (Industrial Facilities), shore-based training facilities, and other system peculiar costs identified as a separate line item, or as a portion of a separate line item, in another part of the Procurement Budget. Identify the content of this entry.
- 4 Procurement costs associated with operation/owning a weapon system such as modifications, replenishment spares, ground equipment, etc.
- 5 By FY, using EPA figures.

DCP ANNEX B
RESOURCES - PREFERRED ALTERNATIVE
 (Current Dollars in Millions)

	FY 19	TO	TOTAL						
	PRIOR	---	---	---	---	---	---	COMPLETIONS ⁵	PROGRAM

Acquisition Quantities
 Development
 Production
 Deliveries

DEVELOPMENT
 Validation Phase
 Full-Scale Development¹
 Total Development Cost¹
 RDT&F Funding (Approved FYDP)

PRODUCTION ²
 System Cost
 (Long Lead Requirements)
 Initial Spares
 Total Procurement Cost¹
 Procurement Funding
 (Approved FYDP)

(A non-add entry for each fiscal year)

MILCON
 During Development
 During Production
 Total MILCON
 MILCON Funding
 (Approved FYDP)

Total Program Acquisition Cost¹
 RDT&F, Procurement and
 MILCON
 Funding (Approved FYDP)
 (Difference)

- 1 Provide goals and thresholds from last SDDM.
- 2 Explain any changes from columns (a) and (b) in a footnote.
- 3 Provide values for total RDT&E and procurement appropriations and for flyaway/rollaway/sailaway cost. Additional cost elements may be appropriate for individual systems. All cost goals and thresholds will be in constant, base year dollars. Definitions shall be in accordance with reference (hh).
- 4 Add additional stubs as appropriate.
- 5 Provide both a total RDT&E program goal and threshold. Fiscal year thresholds shall be displayed in a footnote to this Annex and shall total to the overall RDT&E threshold.
- 6 Provide projected date for next milestone and for Initial Operating Capability (IOC). Define IOC by footnote. Additional schedule elements may be added, as appropriate.
- 7 Select appropriate parameters that drive system effectiveness and costs. The stubs indicated are only examples.
- 8 Use readiness-related R&M parameters that constitute operational availability if more appropriate.
- 9 Provide goals and thresholds to be achieved by the next milestone. Predicted survivability growth and R&M growth shall be displayed in a footnote to this annex as a series of intermediate thresholds capable of being measured during development, production, and deployment. Provide criteria for hardening to each appropriate nuclear effect and criteria for other force-wide or single system performance parameters required for reasonable survivability/endurance.
- 10 Include mission maintainability if maintenance will be performed during the mission.
- 11 Include surge and sustained combat utilization rate if different from peacetime utilization rate.
- 12 Include both operators and maintenance personnel for organic and intermediate levels (include both numbers and skill levels).
- 13 Include separate parameters for depot maintenance.
- 14 Estimate of secondary items investment required to meet systems readiness objectives at stated logistic-related reliability levels. May be stated as requirements per site or operating unit, or for entire fleet, as appropriate.
- 15 Lead time is the time required from contract go ahead to first delivery on that contract including long lead requirements.
- 16 These goals shall be listed for the first production buy and for peak production and should reflect the most efficient rates consistent with resource constraints.
- 17 Acceleration rate is the % increase in month to month delivery rate sustained from 1st unit delivery to max rate.

DCP ANNEX A - GOALS and THRESHOLDS

Last Approved by SKCDFR¹

Recommended to SKCDFR²
At This Milestone

Goal	Threshold	Current Estimate	Goal	Threshold
(a)	(b)	(c)	(d)	(e)

- Spares ¹⁴
- Resupply Time
- Test Equipment R&M

INDUSTRIAL BASE ⁴

- Lead time to produc¹⁵
- Surge Requirement¹⁶
- Production Rate ¹⁸
- Acceleration Rate ¹⁷

DCP ANNEX A - GOALS and THRESHOLDS

Last Approved by **SECRET¹**

Recommended to **SECRET²**
At This Milestone

Goal Threshold

Current Estimate

(a) (b) (c) (d) (e)

COST 3 4

RDTR 5

Procurement
Fly Away

SCHEDULE 4 6

Next Milestone
IOC

PERFORMANCE 7

Operational Availability 8 9
Mission Reliability 9
Mission
Survivability 9
Weight
Range
Speed
Sortie Rate 11

SUPPORTABILITY 7
AND MANPOWER

Manning 12
Maintenance- related RSM 9 13
Petroleum, Oil, Lubricant Consumption

MILESTONE II (and III, If required) DOCUMENTATION
DECISION COORDINATING PAPER (DCP)
FORMAT

Prepare DCP in the format shown below. Do not exceed 8 pages, including annexes. Reference supporting documentation.

Part I: State the direction needed from the Secretary of Defense.

Part II: Identify the program. The Description and Mission statement contained in the "Congressional Data Sheets" may satisfy this requirement.

Part III: Revalidate the need for the program, as expressed in the JMSNS.

Part IV: Summarize system and program alternatives (including Pre-Planned product improvements and standardization objectives) considered and the reasons why the preferred alternative was selected.

Part V: Summarize results of the interactive analysis to confirm the ability of the US system to perform its intended mission in the projected operational threat environment.

Part VI: Summarize the program schedule and acquisition strategy. The degree of planned competition shall be addressed.

Part VII: Identify and assess issues affecting the Secretary of Defense milestone decisions.

ANNEXES

- A. Goals and Thresholds
- B. Resources - Preferred Alternative
- C. Life-Cycle Cost

Test and Evaluation Master Plan (TEMP)

The TEMP, as required by reference (i), shall show the testing to be conducted during the remainder of the scheduled acquisition cycle. The TEMP shall be submitted with the DCP.

SCP ANNEX C
LIFE CYCLE COST

CONSTANT DOLLARS (IN MILLIONS)

<u>ALTERNATIVE</u>	<u>DEVELOPMENT</u>	<u>PRODUCTION</u>	<u>OPERATING AND SUPPORT</u>	<u>TOTAL</u>
A 1				
A 2				
A 3				
o				
o				
o				

CURRENT DOLLARS (IN MILLIONS)

<u>ALTERNATIVE</u>	<u>DEVELOPMENT</u>	<u>PRODUCTION</u>	<u>OPERATING AND SUPPORT</u>	<u>TOTAL</u>
A 1				
A 2				
A 3				
o				
o				
o				

Estimated Other₃ Resources Requirements
 During Development
 During Production
 Industrial Resource Capacity Cost

OPERATING AND SUPPORT

OSM
 MILPERS
 Procurement⁴
 Total Operating and Support Cost

Total Life Cycle Requirements

- 1 Definitions should be in accordance with reference (hh).
- 2 Equal to Weapon System Cost as defined in reference (hh); for Shipbuilding, Outfitting and Post Delivery Costs will be included.
- 3 Other Life Cycle related costs (i.e., Installation, Project Manager Office, Civilian Salaries, etc.) funded by other appropriations; e.g., OSM & MILPERS during Development and/or Production phase. Also, Production Base Support (Industrial Facilities), shore-based training facilities, and other system peculiar costs identified as a separate line item, or as a portion of a separate line item, in another part of the Procurement Budget.
- 4 Identify the content of this entry.
- 4 Procurement costs associated with operation/owning a weapon system such as modifications, replenishment spares, ground equipment, etc.
- 5 By FY, using EPA figures.

- 1 For Milestone I, use this column to supply comparable data to the extent available on existing similar or relevant systems to show what operational availability, mission reliability, sortie rates, manning, maintenance related R&M, fuel efficiency, spare requirements, and resupply time are being experienced and to establish a basis for comparison with the proposed goals.
- 2 Explain any changes from columns (a) and (b) in a footnote.
- 3 Provide values for total RDT&E and procurement appropriations and for flyaway/rollaway/sailaway cost. Additional cost elements may be appropriate for individual systems. All cost goals and thresholds will be in constant, base year dollars. Definitions shall be in accordance with DoDI 5000.33 (reference (hh)).
- 4 Add additional stubs as appropriate.
- 5 Provide both a total RDT&E program goal and threshold. Fiscal year thresholds shall be displayed in a footnote to this Annex and shall total to the overall RDT&E threshold.
- 6 Provide projected date for next milestone and for Initial Operating Capability (IOC). Define IOC by footnote. Additional schedule elements may be added, as appropriate.
- 7 Select appropriate parameters that drive system effectiveness and costs. The stubs indicated are only examples.
- 8 Use readiness-related R&M parameters that constitute operational availability if more appropriate.
- 9 Provide goals and thresholds to be achieved by the next milestone. Predicted survivability growth and R&M growth shall be displayed in a footnote to this annex as a series of intermediate thresholds capable of being measured during development, production, and deployment.
- 10 Include mission maintainability if maintenance will be performed during the mission.
- 11 Include surge and sustained combat utilization rate if different from peacetime utilization rate.
- 12 Include both operators and maintenance personnel.
- 13 Include separate parameters for depot maintenance.
- 14 Estimate of secondary items investment required to meet systems readiness objectives at stated logistic-related reliability levels. May be stated as requirements per site or operating unit, or for entire fleet, as appropriate.
- 15 Lead time is the time required from contract go ahead to first delivery on that contract including long lead requirements.
- 16 These goals shall be listed for the first production buy and for peak production and should reflect the most efficient rates consistent with resource constraints.
- 17 Acceleration rate is the % increase in month to month delivery rate sustained from 1st unit delivery to max rate.

SCP ANNEX A - GOALS and THRESHOLDS

Last Approved by **SECDEF**¹

Recommended to **SECDEF**²
At This Milestone

Goal	Threshold	Current Estimate	Goal	Threshold
(a)	(b)	(c)	(d)	(e)

- Spares ¹⁴
- Resupply Time
- Test Equipment R&M
- Ammunition

INDUSTRIAL BASE ⁴

- Lead time to produce ¹⁵
- Surge Requirement ¹⁶
- Production Rate ¹⁸
- Acceleration Rate ¹⁷

SCP ANNEX A - GOALS and THRESHOLDS

Last Approved by SECDEF¹ Recommended to SECDEF²
 At This Milestone

Current Estimate Goal Threshold

(a) (b) (c) (d) (e)

COST 3 4

RDTE&E 5

Procurement
 Fly Away

SCHEDULE 4 6

Next Milestone
 IOC

PERFORMANCE 7

Operational 8 9

Availability
 Mission Completion Success Probability⁹
 Mission
 Survivability⁹
 Weight
 Range
 Speed
 Sortie Rate¹¹

SUPPORTABILITY 7
AND MANPOWER

Manning 12

Maintenance-
 related R&M⁹ 13
 Petroleum, Oil, Lubricant
 Consumption

11. Methods planned to ensure an industrial base response which will support efficient baseline manufacture and to provide for required surge capacity.
12. Thresholds for performance, system readiness, and supportability, including energy efficiency where applicable.
13. Readiness, O&S cost, and manpower drivers in predecessor systems and targets for improvements in proposed systems.
14. Safety mishap experience on predecessor systems, where applicable.
15. Alternatives to reduce support risks when concurrency is proposed.
16. Major survivability and endurance design goals which will have to be validated during development and the validation methods to be used.
17. Plans for containing cost growth during development and production. Discuss any exception to implementation of cost/schedule control procedures to be used. See DoDI 7000.2 (reference (gg)).

Part IV: Identify and assess issues affecting the Secretary of Defense's milestone decision.

Annexes A, B, and C shall be used to show pertinent information to the extent available.

Test and Evaluation Master Plan (TEMP).

The TEMP is the primary document used in the OSD review and decision process to assess the adequacy of the planned testing, evaluation, and test resources. The TEMP is described in DoDD 5000.3 (reference (i)) and shall be submitted with the SCP.

MILESTONE I DOCUMENTATION
SYSTEM CONCEPT PAPER (SCP)
FORMAT

Prepare the SCP in the format shown below. Do not exceed 15 pages, including annexes. Identify supporting documentation by reference.

Part I: State the direction needed from the Secretary of Defense.

Part II: Describe the concepts explored up to Milestone I, including any that may have been rejected, the basis for narrowing the list of concepts where appropriate, and the results of the system - threat interactive analysis. Describe alternative concepts recommended to be carried into the next phase. Identify mission requirements (including any NATO member requirements) which significantly impact system design features and support concepts.

Part III: Summarize the acquisition strategy for the program. Address as a minimum:

1. Any changes from the approach outlined in the JMSNS.
2. Intended program structure.
3. Plans for design competition during development and price competition in the production phase.
4. The extent of demonstration and validation to be accomplished before the next milestone.
5. Resources programmed for the demonstration/validation phase and a planning estimate for the remainder of the program.
6. Identify the specific event and the criteria to be met for a Milestone II decision and establish a "not to exceed" cost threshold to go from Milestone I to Milestone II.
7. Contracting approach, including types of contracts contemplated for succeeding phases.
8. Tradeoffs to be made during demonstration and validation.
9. Equipment and architectural (operational interfaces with other systems) standardization goals and objectives.
10. Test and evaluation philosophy for the demonstration/validation phase.

DCP ANNEX C
LIFE CYCLE COST

CONSTANT DOLLARS (IN MILLIONS)

<u>ALTERNATIVE</u>	<u>DEVELOPMENT</u>	<u>PRODUCTION</u>	<u>OPERATING AND SUPPORT</u>	<u>TOTAL</u>
A 1				
A 2				
A 3				
o				
o				
o				

CURRENT DOLLARS (IN MILLIONS)

<u>ALTERNATIVE</u>	<u>DEVELOPMENT</u>	<u>PRODUCTION</u>	<u>OPERATING AND SUPPORT</u>	<u>TOTAL</u>
A 1				
A 2				
A 3				
o				
o				
o				

INTEGRATED PROGRAM SUMMARY (IPS) FORMAT

The IPS summarizes the implementation plan of the DoD Component for a major system acquisition. The IPS should not exceed thirty pages (inclusive of all annexes, except Annex B). When further detail is available in a published study or plan, reference these documents in the IPS. Do not classify the IPS higher than SECRET. When possible, display data in numerical or tabular format. The following annexes are mandatory:

- A. Resources - Cost Track Summary
- B. Resources - Funding Profile
- C. Resources - Summary of System Acquisition Costs
- D. Manpower

Include the topics indicated below in the IPS.

1. Program History. Summarize previous milestones decisions and guidance, PPBS decisions, and significant Congressional actions affecting the program.
2. Threat Assessment. Provide an up-to-date summary of the projected threat, focusing on intelligence relating to the CIPs.
3. Program Alternatives. In addition to the program proposed by the DoD Component in the DCP, briefly describe each DCP alternative program and Pre-Planned Product Improvement (P²I), including advantages and disadvantages. Do not duplicate data in the DCP or in the IPS annexes.
4. Cost. Address the elements listed below. Make the discussion consistent with Annexes, A, B, C, and address such displays in expanded detail, if appropriate.
 - a. Cost Effectiveness Analysis: Summarize the assumptions, methodology, status, and results of any cost-effectiveness analyses prepared in support of the milestone decision. This section shall contain specific discussions of those aspects of the analyses that relate to the issues identified at the Milestone Planning Meeting. If the analysis supporting the recommended milestone decision is not complete at the time the IPS is submitted, describe the analytical and coordination tasks remaining and provide a schedule for completion of the analysis before the scheduled DSARC meeting.
 - b. Cost Control: Discuss cost control plans to include the following items:
 - (1) Assumptions on which the proposed program cost thresholds were determined.
 - (2) Proposed Design-to-Cost objectives and how they shall be implemented at the contract level. Refer to DoD Directive 5000.34 (ref. (f)) and to DoD Directive 5000.28 (ref. (i)).
 - (3) Exceptions to implementation of Cost/Schedule Control Systems Criteria and alternative cost control procedures to be used. See reference (gg).

5. Procurement.

a. **Acquisition Strategy:** Describe the current strategy to acquire and deploy a system to satisfy the mission need.

b. **Contracting:** Provide a summary of information in the contracting plan. At a minimum, include: (a) the program contracting plan (introduction and maintenance of competition throughout the system life-cycle and plans for competitive breakout of components by both the government and the contractors); (b) contractor performance under contracts in the current program phase; and (c) major contracts to be awarded in the next program phase (summary of work-scope, contract types, sources solicited and selected, scheduled award dates, special terms or conditions, data rights, warranties, estimated cost or price including incentive structures). When appropriate, reference other portions of the IPS or other documents. Do not include contractor sensitive data in this paragraph.

6. **Organizational and Operational Concept.** Describe the organizational structure associated with the system and the general system operational concept. Describe a typical mission profile(s) and activity rates (wartime and peacetime).

7. Readiness (R&M, Support, and Personnel)

a. At Milestone II:

- (1) Identify R&M test results to date and the quantitative impact of differences in resource requirements such as personnel, spares, depot maintenance, to meet readiness objectives.
- (2) Estimate any deficiencies of current and planned support systems to meet logistic objectives for the system, such as resupply time, maintenance turn-around-time, and automatic test equipment production rate and capacity.
- (3) Identify any plans and funding for interim contractor support and any subsystems considered for long-term contractor support and the analysis leading to contractor support decisions.
- (4) Explain briefly significant manpower differences in numbers and skills levels in comparison with a current comparable (reference) system as shown in Annex D, considering design and support concepts, and employment objective.
- (5) Identify projected shortfalls in manpower occupational specialties required for the new system in critical career fields. Identify new occupations that may be required. If shortages exist, explain how required manning will be attained.
- (6) Summarize significant differences in training requirements and approach for the new system versus a comparable reference system. Identify training equipment development and anticipated savings from use of simulators or other training devices for operations, maintenance, and support personnel.

- (7) Define each R&M parameter which applies to the system proposed in the DCP.
 - (8) Identify POL requirements and any additional resources or facilities required to supply POL for the new system.
- b. At Milestone III (if a SECDEF decision is required)
- (1) Update Milestone II IPS, Parts (1), (2), (3), (4) and (5), including Annex D.
 - (2) Summarize plans and additional resources required to train the initial component of operating and support personnel for unit conversion to fielded systems. Summarize plans for training reserve component personnel whose mission requires operation or support of the system.
 - (3) Reference plans for validation of proficiency criteria and personnel performance.

8. Configuration Management. Identify interfacing systems and discuss the degree of configuration management planned for each phase. Also, explain any intended deviations from DoD Directive 5010.19 (reference (j)).

9. Test and Evaluation. Briefly describe the overall test strategy for contractor, development, and operational test and evaluation.

Address each of the following areas as required. The OSD staff may also identify issues to be addressed by the Component in these areas at the Milestones Planning Meeting or in the comments on the draft IPS.

- 1. Technology Assessment. If all or part of the technology planned for use in this program has not been demonstrated, give reasons for its use and identify technology risks and activities planned to reduce them.
- 2. Systems Computer Resources. Identify and discuss any waivers from or exceptions to the policies in DoDD 5000.29 (reference (z)) and subsidiary instructions.
- 3. Data Management. Identify exceptions to the use of approved specifications, standards, their related technical and engineering data, special reports, terminology, data elements and codes to be used. Refer to DoDD 5000.19 (ref. (aa)) and to DoDD 4120.21 (ref. (k)). Identify contractor data products which can be used as substitutes for DoD required reports.
- 4. Facilities. Identify any new government or industry facilities required to develop, produce, test and support the new system. Identify cost and schedule constraints (e.g., training, maintenance) if new facilities could not be obtained.
- 5. System Vulnerability. Describe nuclear and nonnuclear survivability and endurance shortfalls which would impair mission performance in the proposed system and indicate constraints which preclude satisfactory performance in response to the mission need.

6. Manufacturing and Production. Describe areas of production risk (including producibility, availability of facilities and materials to support planned and surge production rates, and unusual leadtime requirements) and describe the strategy to reduce risk. Show the variation in unit cost with production rates and rate break points. Also show areas where projected or potential facilities, manufacturing technology modernization, or producibility program, or utilization of standard components and subsystems would significantly reduce production costs.

7. System Safety. Prior to Milestone II and III, summarize the results of the system safety analysis and specify corrective actions pending on all significant unresolved safety hazards. This summary should cite management decisions, if any, to accept the risks associated with specific identified hazards.

8. Environment, Health, and Safety. List any exceptions to requirements in these areas and identify constraints which preclude attainment of objectives. Summarizes environmental consequences of proceeding with the program.

9. International Programs. When NATO RSI or Foreign Military Sales are involved, briefly describe the impact of these requirements on the program.

IPS ANNEX A*

RESOURCES - COST TRACK SUMMARY ¹
(Millions of Dollars)

	FY Constant (Base Year) \$	Escalated \$
Planning/ Development/ Estimate ²	SDDM (Date) ³	Current Estimate ⁴

DEVELOPMENT PHASE
RD&E

Validation Phase
Full Scale Development
Contractors
(Provide one level of WHS indenture
based on program requirements)
In-House
(Provide one level of WHS Indenture
based on program requirements)
Co. ingency (Service)

TOTAL RD&E APPROPRIATION
MILCON
O&M ⁵
MILPERS
TOTAL DEVELOPMENT PHASE

*(Annex A will be presented in two forms
The first will be based on the program Baseline for quantity, peak rate,
and rate acceleration span. This will include any enhancements made to
optimize the program baseline. The second will be based on the Industrial
Reserve capacity require to support the determined surge rate. i.e. based
on a different set of quantity, peak rate, and Rate acceleration (base to
peak) span.)

FY Constant (Base Year) \$

Escalated \$

Planning/
Development/
Estimate 2

SDDM
(Date) 3

Current
Estimate 4

Current
Estimate 4

PRODUCTION PHASE

PROCUREMENT 7

System Cost

() 6

() 6

() 6

Fly Away
(Provide one level of WHS indenture based on program requirements)
Other System Costs
Initial Spares
Other Line Item Procurement 8

TOTAL PROCUREMENT APPROPRIATION

MILCON

O&M 3

MILPERS 5

TOTAL PRODUCTION PHASE

TOTAL OPERATING & SUPPORT PHASE

TOTAL LIFE CYCLE REQUIREMENTS

AVERAGE ANNUAL SYSTEM O&S COSTS

No. of Systems: No. of Years:

- 1 Apply footnotes as required to explain the chart. Adjustments to format are authorized to accommodate program; such entries will be decided on at the initial Milestone Planning Meeting. Definitions should be in accordance with reference (hh).
- 2 Identify basis for estimate and data of SDDM.
- 3 Add columns as necessary for each SDDM revision.
- 4 The preferred alternative or the latest approval baseline cost estimate contained in the SDDM will be shown in both constant and current (escalated) estimate columns.

- 5 Other Life Cycle related costs (i.e., Installation, Project Manager Office, Civilian Salaries, etc.) funded by O&M and MILPERS during Development and/or Production phases.
- 6 Enter Quantity.
- 7 Equal to Weapon System Cost as defined in reference (hh).
- 8 Industrial Preparedness Program (Industrial Facilities Manufacturing Technology, Technology Modernization, etc.) and other system peculiar costs identified as a separate line item, or as a portion of a separate line item, in another part of the Procurement Budget. Identify each by the program elements from which funding is required and the amount in each.

NOTE: Reasons for significant variations in estimate should be explained by footnote (e.g., schedule slippage, Congressional funding, etc.).

Annex to be completed for each alternative:
 1) In Constant (base) year dollars
 2) In Escalated dollars using current
 FYDP rates and ground rules

IPS ANNEX B*
RESOURCES - FUNDING PROFILE¹
 (Dollars in Millions)

FY 19 FY 19 FY 19 FY 19 FY 19 **TOTAL**
PRIOR **PROGRAM**

Acquisition, Quantities to be
 Procured
 Development
 Production
 Deliveries

DEVELOPMENT PHASE

RDTS&
 Validation Phase
 Full-Scale Development Phase
 Other System Costs

TOTAL RDTS& APPROPRIATION

MILCQN
OSH
MILPERS ³

TOTAL DEVELOPMENT PHASE

PRODUCTION PHASE

PROCUREMENT ⁴
 System Cost ⁵
 Flyaway, Rollaway, Sailaway,
 Other System Costs
 Initial Spaces
 Other Line Item Procurement ⁶

*(Annex B will be presented in two forms
 The first will be based on the program Baseline for quantity, peak rate,
 and rate acceleration span. This will include any enhancements made to
 optimize the program baseline. The second will be based on the Industrial
 Reserve capacity require to support the determined surge rate. i.e. based
 on a different set of quantity, peak rate, and Rate acceleration (base to
 peak) span.)

TOTAL PROCUREMENT APPROPRIATION

MILCON

OSH

MILPERS 3

TOTAL PRODUCTION PHASE

OPERATING AND SUPPORT PHASE

MILPERS

OSH

Procurement 7

TOTAL OPERATING AND SUPPORT PHASE

- 1 Apply footnotes as required to explain the chart. Adjustments to format are authorized to accommodate program; stub entries will be decided on at the initial Milestone Planning Meeting. Definitions should be in accordance with reference (hh). Use as many columns as necessary to show every year of acquisition funding and operation and support funding until Stead state operations are achieved.
- 2 Identify the number of Development and Production units to be required by fiscal year.
- 3 Other Life Cycle related costs (i.e., Installation, Project Manager Office, Civilian Salaries, etc.) funded by other appropriations; e.g., O&M and MILPERS during Development and/or Production phase.
- 4 Enter the costs by appropriation e.g., Aircraft, Procurement, Missile Procurement, Ships Construction Navy or Other Procurement. If more than one applies, identify it separately.
- 5 Equal to Weapon System Cost as defined in reference (hh).
- 6 Industrial Preparedness Program (Industrial Facilities Manufacturing Technology, Technology Modernization, etc.) and other system peculiar line item, in another part of the Procurement Budget. Identify each by the program element from which funding is required and the amount in each.
- 7 Procurement costs associated with operation/owning a weapon system such as modifications, replenishment spares, ground equipment, etc.

IPS ANNEX C
RESOURCES - SUMMARY OF SYSTEM ACQUISITION COSTS ¹

<u>SOURCES OF FUNDING</u>	<u>CURRENT DOLLARS (MILLIONS)</u>
Department of the Army	\$XXXXX
Program Element XXXXX	<u>\$XXXXX</u>
Program Element XXXXX	<u>XXXXX</u>
Department of the Navy	XXXXX
Program Element XXXXX	<u>\$XXXXX</u>
Department of the Air Force	XXXXX
Program Element XXXXX	<u>\$XXXXX</u>
Defense Agencies	XXXXX
Program Element XXXX	<u>\$XXXXX</u>
Other U.S. Government	XXXXX
Other Foreign	<u>XXXXX</u>
TOTAL FUNDING	\$XXXXX

<u>APPLICATIONS</u>	<u>CURRENT DOLLARS (MILLIONS)</u>
Major System Equipment	\$XXXXX
System Project Manager	XXXXX
System Test and Evaluation	XXXXX
Peculiar Support Equipment	XXXXX
Training	XXXXX
Data	XXXXX
Operational Site Acquisition	XXXXX
Industrial Facilities	XXXXX
Common Support Equipment	XXXXX
Initial Spares and Repair Parts	<u>XXXXX</u>
TOTAL FUNDING	\$XXXXX

¹ Refer to reference (f).

IPS ANNEX D
MANPOWER

The IPS will have a one page Manpower annex including the following:

A. Current manpower estimate for military force structure:

¹ UNIT TYPE	UNIT MANNING ²		NO. OF ³ UNITS	PROGRAM TOTALS ⁴		
	PROGRAM ALTERNATIVE	REFERENCE SYSTEM		ACTIVE MILITARY	RESERVE COMPONENT	OTHER

B. Net Change in Total Force Manpower associated with the proposed system deployment:

Active Forces Reserves DoD Civilians

Number of Authorizations

- 1 List each unit type that will operate the system/primary system elements, including unit types that provide intermediate maintenance under peacetime and wartime conditions of system components. Examples of unit types are "Tank Battalion," "Munitions Maintenance Squadron," "Avionics Intermediate Maintenance Department."
- 2 For each unit type, show the manning required to satisfy the most demanding mission (normally combat employment, but may be pre-combat readiness for certain naval vessels and systems on alert). Show total unit manning for operating units, organizational level direct support units, and dedicated intermediate support units. For units that provide intermediate level support to many primary systems, such as naval shore based intermediate maintenance departments, show manning equivalent of the man years of work attributable to program the alternative. Denote manning equivalents with an asterisk.
- 3 Identify any new career fields or occupational specialties and any significant shifts in skill levels.
- 4 Number of units of each type in the planned force structure for the program alternative.
- 5 Multiply number of units by unit manning, and equivalent manning by quantity of systems deployed, to obtain total manning required for units operating and/or supporting the program alternative system. Show how these requirements are expected to be satisfied as: active military authorizations, reserve component authorizations, and/or other to be identified in footnote. Unprogramed requirements must be shown as "other."

6 DODD 5000.34
Defense Production Management

Revision of DoD Directive 5000.34

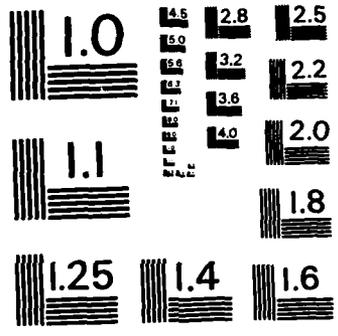
(Production Management)

This directive was revised to expand the role of production management in oversight of industrial base analyses, in furtherance of the recommendation that industrial base issues be integrated in the acquisition process.

The key TFIRE recommendations are:

- To define the industrial resource analysis and the functional responsibility for its accomplishment*
- To delineate the level of industrial resource analysis to be accomplished at each DSARC Milestone review
- To require that industrial preparedness planning be more closely considered when making baseline production decisions.

* See atch 1 for a list of questions and factors that should be considered in an industrial resource analysis



MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS - 1963 - A

FACTORS WHICH MUST BE KNOWN FOR INDUSTRIAL RESOURCE CAPACITY

EXPANSION DECISIONS:

1. What total quantity is required?
2. When must the total quantity be available?
3. What basic industry imposes the gross constraint rate?
4. a.) What is the gross constraint rate? b.) Can it be circumvented by design or by other reasonably achievable means (excluding such means as development of completely new technology or nationalization of segments of the industrial base).?
5. What is the desired surge peak rate (the lesser of the gross constraint result of (4) and ((total quantity required - planned quantity) ÷ (system need date (from (2)) - surge start date))?)
6. What is the maximum possible acceleration rate from the planned production curve, considering:
 - Acquisition of facilities
 - Acquisition of Capital Equipment
 - Acquisition of material
 - Acquisition of additional ST/STE
 - Acquisition/training of manpower
 - Dual Source potential
 - Absorption rate of using service(s)
7. What is the optimum production acceleration rate, considering:
 - Learning/improvement span compression elements
 - Marginal utility of controlled capital expansion (maximized)
 - Minimum impact of labor accession/training/improvement
 - Controlled vendor base expansion
 - Dual source potential
 - Point of departure from planned rproduction curve
 - Minimum capital/labor overshoot at required peak (calculate for both gross constraint rate and derived peak from (5))
8. Is (2) achievable with optimum acceleration rate? With maximum acceleration rate? (Requires integration of maximum vs. optimum acceleration curves from first surge delivery to quantity (1)). Select the lesser of maximum or optimum slopes which meets requirement.

9. What are the lead time setbacks to :

Event	Max Accel Rate (set-back from deliv)	Optimum Accel Rate (set-back from deliv)
Assembly Start - - - - -	_____	_____
Fabrication Start - - - - -	_____	_____
LL Material Order - - - - -	_____	_____
Capital Expansion Start - - - - -	_____	_____
Vendor Commitment - - - - -	_____	_____
 CUM LEAD TIMES	 =====	 =====

10. Given 1 , 2 , 4 , and 8 , when must commitment decisions be made by the Government?

11. Can the Program Planning and Budgeting System support these decision points?

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NUMBER 5000.34

Department of Defense Directive

SUBJECT: Defense Production Management

- References:**
- (a) DoD Directive 5000.1, "Major Systems Acquisition", TBD
 - (b) DoD Instruction 5000.2, "Major System Acquisition Process", TBD
 - (c) DoD Instruction 4200.15, "Manufacturing Technology Program", TBD
 - (d) DoD Directive 4005.1, "DoD Industrial Preparedness Planning", TBD
 - (e) DoD Instruction 4400.1, "Priorities and Allocations", November 16, 1971
 - (f) DoD Instruction 7000.2; "Performance Measurement for Selected Acquisitions", June 10, 1977
 - (g) DoD Instruction 5000.38, "Production Readiness Reviews", January 24, 1979

A. PURPOSE

This Directive establishes policy and assigns responsibilities for Production Management in the Department of Defense during the acquisition of defense systems and equipment.

B. APPLICABILITY AND SCOPE

The provisions of this Directive apply to the Office of Secretary of Defense, the military Departments, and the Defense Agencies (hereafter referred to as DoD Components) for the acquisition of major system programs as defined by reference (a). Production management of non-major programs shall be guided by the provisions of this Directive. The principles contained in this Directive apply to all defense material programs.

C. DEFINITIONS

Terms used in this Directive are defined in enclosure 1.

D. POLICY

1. Each DoD Component having authority and responsibility for acquisition of major systems shall establish a focal point responsible for the production management function. This focal point shall develop policy and procedures to implement the provisions of this Directive and shall coordinate production management activities.

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2. Explicit assessment of production capability shall be started in time to support the introduction and validation of the production management goals and thresholds documented in the DSARC process (reference DoD Instruction 5000.2, reference (b)). These assessments shall consider producibility, productivity, industrial resources analysis (IRA), material availability, and other factors which affect the ability to meet the program requirements. Capability assessment, including identification of associated risks, shall be refined throughout the acquisition process by the production readiness assessments supporting acquisition milestones as outlined in references (a) and (b).

3. Manufacturing technology opportunities shall be identified concurrent with concept demonstration and validation (through the use of manufacturing technology projects (reference DoD Instruction 4200.15, reference (c))).

4. Where appropriate, manufacturing shall be a separate highly ranked area in source selections concentrating on contractor past performance, ability to produce efficiently, producibility of the design, manufacturing technology implementation, and demonstrated production management capability.

5. Industrial preparedness planning shall be integrated with production management in accordance with DoD Directive 4005.1, reference (d). Determination of priorities shall be made within the framework of DoD Component delegation as delineated in DoD Instruction 4400.1, reference (e). Production planning shall be specifically directed to the industrial resource capacity needed to meet planned production, surge, and mobilization goals established at Milestone I in accordance with reference (b).

6. Production planning is a continuous process beginning at Milestone 0. An acquisition shall not proceed into production until it is determined that the principal contractors and subcontractors have, or will acquire the physical, financial, and managerial capacity to meet production cost and schedule commitments and IPP requirements.

7. Programs will be subject to independent assessments of production management conducted by OUSDR&E to support DSARC or special OSD program reviews, or to contribute to the considerations attendant to scheduling such reviews. These assessments will address aspects of production management which are relevant to the objectives of the review at issue.

8. Competition, contractual incentives, value engineering, industrial preparedness measures, tailoring of specifications and standards, design to cost, these studies, producibility, constant workforce approach, and other techniques shall be used to minimize production, operating and support costs and lead time. Continued emphasis shall be placed on reducing the costs of manufacturing during the production phase of the program.

9. The use of work measurement standards shall be encouraged throughout the development and production phases. Production management planning shall include provisions for measuring progress in meeting design to cost and life cycle cost goals. Cost/schedule control systems to be used in the production phase shall satisfy the requirements of DoD Instruction 7000.2, reference (f).

E. RESPONSIBILITIES

1. The Under Secretary of Defense for Research and Engineering is responsible for production management, including:

a. Issuing directives and instructions relating to production management, production readiness, production priorities, and industrial preparedness.

b. Evaluating the production management activities of the DoD Components to assure consistent application of policy and principals.

c. Providing Defense Guidance for the research programs required for the development of defense related manufacturing technology.

d. Exercising policy and operational control of the DoD product Engineering Services Office in its mission of providing assistance to the DoD Components on production management matters and conducting independent assessments of producibility, industrial resource capacity and production readiness.

e. Assuring the adequacy of funds budgeted to satisfy the DoD needs for manufacturing technology, facilities, and industrial preparedness.

2. The heads of the DoD Components are responsible for:

a. Planning, programming, budgeting, and executing production management in accordance with this Directive.

b. Establishing a production management focal point.

c. Conducting a vigorous manufacturing technology program and assessing its impact on major system acquisitions.

d. Appropriate interface and delegation of authority to the plant cognizant administration activities.

e. Assuring that consideration is given to the producibility of proposed concepts during the validation phase.

f. Assuring that the program funding and schedule provide for reduction of production risk through production engineering and planning, IRA, and manufacturing technology activities.

g. Integrate industrial preparedness planning and IRA into the production management of defense systems.

h. Conducting production readiness reviews in support of production decisions.

i. Assuring that the system constructor(s) develop and pursue effective production plans.

j. Planning and funding continuing cost reduction activities during the Full Scale Development and Production Phases.

k. Exercising surveillance over contractor production operations to identify variances from the production plan and cost in time to direct corrective action.

l. Presenting the program production management status to the DSAR or SSARC at Program Milestones in accordance with paragraph F below.

F. PROCEDURES

1. The DSARC or SSARC shall specifically address production management concern at each Milestone decision point in accordance with the reporting requirements of DoD Instruction 5000.2, reference (b) and the requirement below;

a. Milestone I - Validation. Address production feasibility of candidate system(s) evaluated and reported areas of risk. Identify manufacturing technology or industrial preparedness measures needed to reduce production risks and propose required implementation. Conduct a Summary industrial resource analysis as the basis for determinating planned production, surge or mobilization acceleration and delivery rate goals. During this analysis consider potential competing demands for resources from other programs.

b. Milestone II - Full Scale Development. Review producibility of the design approach and identify and risks. Identify and evaluate requirements for long lead procurement. Include in the FSD phase provisions to assure the producibility of the design. Assess industrial resource capacity at the prime and subcontractor levels to set planned production, surge, or mobilization acceleration and delivery rate goals. Include in this assessments the impact of ongoing manufacturing technology, producibility, and technology modernization programs.

c. Milestone III - Production. Supported production readiness reviews indicating acceptable risks to the planned production program. Include the impact of continuing cost improvement actions in IRA and life cycle cost forecasts.

G. EFFECTIVE DATE AND IMPLEMENTATION

This directive is effective immediately. Forward two copies of implementing regulations to Under Secretary of Defense for Research and Engineering within 180 days.

DEFINITIONS

- A. Production Management. The effective use of resources to produce on schedule the required number of end items that meet specified quality, performance and cost. Production management includes but is not limited to manufacturing management, industrial preparedness planning, producibility, productivity, industrial resources, and production engineering.
- B. Production Engineering. The application of design and analysis techniques to produce a specified product. Included are the functions of planning, specifying, and coordinating the application or required resources; performing analyses of producibility and production operations, processes, and systems; applying new manufacturing methods, tooling, and equipment; controlling the introduction of engineering changes; and employing cost control techniques.
- C. Producibility. The relative ease of producing an item or system which is governed by the characteristics and features of a design that enables economical fabrication, assembly, inspection, and testing using available or obtainable production techniques.
- D. Production Readiness. The state or condition of preparedness of a system to proceed into production. Production readiness requires a complete and producible design, adequate industrial resource capacity and the managerial and physical preparations necessary for initiating and sustaining a viable production effort.
- E. Production Readiness Review. A formal examination of a program to determine if the design is ready for production, production engineering problems have been resolved, and the producer has accomplished adequate planning for the production phase.
- F. Industrial Resource Analysis. Discrete analysis resulting in determination of requirements for and availability of production resources. These resources include capital, material, and manpower, required to accelerate to full production rates (including surge and mobilization requirements). IRA planning should include the results of production engineering, producibility analysis, and manufacturing technology programs and be predicated on both planned and potential surge/mobilization production requirements.

7 DODD 4105.62
Selection of Contractual
Sources for Major Defense Systems

Revision of DoD Directive 4105.62

(Selection of Contractual Sources for Major Defense Systems)

This directive is under revision as the result of Decision No. 20 of the DoD Acquisition Improvement Initiatives, entitled "Improving the Source Selection Process." This proposed revision, which is a complete re-write of the directive, was provided to USDR&E(AM) MSA as an initial draft for their subsequent effort to update the directive. Thus, unlike most other TFIRE products, this directive is not ready to enter coordination at the present time.

This revision is responsive to Deputy Secretary of Defense direction that USDR&E modify the source selection directive to emphasize the following:

Improve the source selection process to place added emphasis on past performance, schedule realism, facilitization plans and cost credibility. De-emphasize the importance of lowest proposed cost. Devote more attention to evaluating contractors' performance during and at the time of contract completion. Provide award fee contract structure to encourage good performance. This both provides an incentive for good performance and a measure of contractor performance to be used in future source evaluations. Establish quality ratings where possible and ensure that past performance ratings are available for use by source selection personnel.

DRAFT

NUMBER 4105.62



Department of Defense Directive

SUBJECT: Selection of Contractual Sources for Major Defense Systems

References: (a) DoD Directive 5000.1, "Major System Acquisition,"
TBD
(b) DoD Directive 5000.19
(c) DoD Directive 4105.62
(d) DoD Directive 5000.3
(e) DoD Directive 5000.4
(f) through (i) see Enclosure 1

A. REISSUANCE AND PURPOSE

1. This Directive is reissued to revise Department of Defense policy for the competitive solicitation, evaluation, and selection of contractual sources for the acquisition of major Defense systems, to place added emphasis on past performance, schedule realism, industrial base response, and cost credibility and to deemphasize the importance of lowest proposed cost. Reference (c) is hereby superseded and cancelled.

2. The provisions of this Directive apply to the Military Departments and Defense Agencies (hereafter referred collectively to as "DoD Components") in the competitive acquisition of major Defense systems.

B. POLICY

The following policy shall govern the management of the source selection process. The requirements of the process are defined in the Defense Acquisition Regulation System, primarily in DAR 4-106 and DAR 4-107 (reference (h)).

1. General

a. The principal objectives of the process are to (a) select the source whose proposal has the highest degree of realism and credibility and whose performance is expected to best meet Government objectives at an affordable cost, (b) select a source who has the ability to produce efficiently in the amount of time allotted, and to (c) ensure complete evaluation of the contractor's proposed actions and of his relevant past performance.

b. The selection of contractual sources may be either as a result of a competition among alternative system design concepts or a single system with different design solutions. In either case, the concept of reliance on competition throughout the source selection process and the procedures for selection outlined in DAR are appropriate and applicable.

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(1) There are, however, certain additional factors which more appropriately must be considered when the selection of a source is to be made from among alternative system design concepts. In this case the utility of the system to satisfy the mission requirements will be of prime importance. In the case where the system has been selected, however, the primary factors to judge are different and should deal with the contractor's ability to perform his proposed actions in an efficient manner.

(2) Technical approach or design solution should not be defined; instead, the requirements should be defined to reflect the mission need, schedule, cost, capability objectives, and operating constraints.

b. Each DoD Component Head shall be the Source Selection Authority for his Component, unless withheld by the Secretary of Defense, as a specific program. This Component Head is the Source Selection Authority for this Component, with power of delegation at his discretion.

(1) The Source Selection Authority is responsible for the proper and efficient conduct of the entire source selection process, encompassing proposal solicitation, evaluation, selection, and contract award. He shall have (subject to law and applicable regulations) full responsibility and authority to select the source(s) for award and to approve the execution of the contract(s). The Source Selection Authority shall ensure that the contract(s) and the proposed program approach are compatible with the System Concept Paper or Decision Coordinating Paper (reference (g)) and the Secretary of Defense Decision memoranda. Office of the Secretary of Defense personnel will not participate in DoD Component source selection activities, except as specifically approved by the Source Selection Authority. However, certain OSD

organizations have responsibilities which require them to have access to sensitive source selection information over an adequate time interval in order to perform their designated functions. These functions are addressed in references (d) and (e). Particular care will be exercised by these organizations to restrict dissemination of source selection sensitive information on a strict need to know basis; each organization shall record access to this information and require execution of appropriate disclosure statements as required by the SSA for members of the source selection evaluation group. Arrangements to comply with the latter shall be agreed to between the SSA and the OSD organization head. The SSA shall have the sole authority to authorize release of source selection data and information. Such data shall not be released to the press (without the prior coordination) of the Office of the Assistant Secretary of Defense (Public Affairs) or its designee. Department of Defense personnel shall not contact or visit a contractor regarding a proposal under source selection evaluation, without the prior approval of the SSA or the Contracting Officer.

(2) After the selection decision has been made, DoD Component leads will advise the Secretary of Defense on the outcome of the source selection prior to public announcement of the successful competitors(s) and the contract award(s). The SSA will ensure that the unsuccessful competitors are debriefed in accordance with DAR 3-508.4 (reference (i)).

B. Organization

1. The program manager will direct the source selection evaluation process with delegation power to his principal contracting officer.

meaning of the clause of this contract entitles "Disputes." However, nothing in this clause shall excuse the contractor from proceeding with the performance of the contract as changed.]

4.70 Surge Option Clauses. One of the following clauses shall be inserted in all cost reimbursable supply contracts for surge items in accordance with DOD Instruction 4005.3, "Industrial Preparedness Planning Procedures.

4.70a. Use this surge clause in conjunction with the Production Surge Plan, Item Description (See DoD 4005.3-M)

Surge Option Clause (for use when Production Surge Plan DID is used)

The Government may increase the quantity of the supplies called for herein, to exceed _____ percent and at a unit ceiling price (set forth below) and the net values will be negotiated at the time of exercise. The contracting officer may exercise this Surge Option Clause for increased quantities, by giving written notice to the contractor, calling forth the quantity and delivery any time prior to the acceptance by the Government of the last scheduled item on the contract. The Production Surge Plan, that is a Contract Data Requirements List item in the contract, will be the basis for the contracting officer to establish a delivery rate required by the Government. The contractor will not be requested to deliver at a rate greater than the maximum delivery rate developed under the Production Surge Plan.

Inasmuch as the unit price for the basic quantity may contain starting load, tooling, transportation and other costs not applicable to option quanti-

to the acceptance by the Government of the last scheduled item on the contract.

2. Inasmuch as the unit price for the basic quantity may contain starting load, testing, tooling, transportation and other costs not applicable to option quantities, offerors are requested to take these factors into consideration and set forth the unit price in the space provided below for the surge option quantities. If the offeror does not indicate a unit ceiling price in the space(s) provided below, it will be interpreted by the Government to mean that the unit price shown in the schedule is the unit ceiling price applicable to the option quantity.

3. Varying prices may be offered for the surge option quantities depending on the quantities actually ordered and the date or dates when ordered.

Surge Option Quantity Unit Ceiling Price \$_____ ea (CLIN _____).

Surge Option Quantity Unit Ceiling Price \$_____ ea (CLIN _____).

4. Within ___ days from the date of award of this contract the contractor will furnish the contracting officer delivery schedules representing the maximum rate of delivery achievable for items in this contract on a single shift, single shift with premium pay (overtime), two shifts, three shifts, or any achievable combination of these which will accelerate production of the items in this contract.

5. The contractor will not be required to deliver at a rate greater than the maximum delivery rate developed under the requirement of the preceding paragraph.

6. Failure to agree to a price in any negotiation resulting from the exercising of this option clause shall be a dispute concerning a question of fact within

space(s) provided below, it will be interpreted by the Government to mean that the unit price shown in the schedule is the unit ceiling price applicable to the option quantity.

3. Varying prices may be offered for the surge option quantities depending on the quantities actually ordered and the date or dates when ordered.

Surge Option Quantity Unit Ceiling Price \$ _____ ea (CLIN _____).

Surge Option Quantity Unit Ceiling Price \$ _____ ea (CLIN _____).

4. Failure to agree to a price in any negotiation resulting from the exercising of this option clause shall be a dispute concerning a question of fact within the meaning of the clause of this contract entitled "Disputes." However, nothing in this clause shall excuse the contractor from proceeding with the performance of the contract as changed.

7-104.106b. Use when the item is identified as a surge item but there is not a requirement for a Data Item Description

Surge Option Clause (for use when no Production Surge Plan is used)

1. The Government may increase the quantity of the supplies called for herein, not to exceed _____ percent and at a unit ceiling price (set forth below) which is negotiable at the time of exercise and downward only. The contracting officer will exercise this Surge Option Clause for increased quantities, by giving written notice to the contractor, calling forth the quantity and delivery any time prior

[7-104.106 Surge Option Clauses. One of the following clauses shall be inserted in fixed price supply contracts for surge items in accordance with DoD Instruction 4005.3, "Industrial Preparedness Planning Procedures.

7-104.106a. Use this surge clause in conjunction with the Production Surge Plan, Data Item Description (See DoD 4005.3-M):

Surge Option Clause (for use when Production Surge Plan DID is used)

1. The Government may increase the quantity of the supplies called for herein, not to exceed ____ percent and at a unit ceiling price (set forth below) which is negotiable at the time of exercise and downward only. The contracting officer will exercise this Surge Option Clause for increased quantities, by giving written notice to the contractor, calling forth the quantity and delivery any time prior to the acceptance by the Government of the last scheduled item on the contract. The Production Surge Plan, that is a Contract Data Requirements List item in the contract, will be the basis for the contracting officer to establish a delivery rate required by the Government. The contractor will not be required to deliver at a rate greater than the maximum delivery rate developed under the production surge plan.

2. Inasmuch as the unit price for the basic quantity may contain starting load, testing, tooling, transportation and other costs not applicable to option quantities, offerors are requested to take these factors into consideration and set forth the unit price in the space provided below for the surge option quantities. If the offeror does not indicate a unit ceiling price in the

[(d) Surge planning applies to (1) all new systems being developed in accordance with DOD Directive 5000.1, Major System Acquisitions, (2) all earlier major systems which are already in production, (3) those critical items managed by the DOD components which are priority one items on the Industrial Preparedness Planning List (IPPL), and (1) any item not on the IPPL that is determined necessary to support a surge situation.]

1-2208 Small Business Concerns. The policy of placing a fair proportion of purchases and contracts with small business concerns (see 1-702) applies in [both surge and] mobilization planning and each Department shall continually study its Industrial Preparedness Production Planning procedures to include small business participation to the maximum practical extent.

1-2209 Priorities, Allocation, and Allotments. In order to maintain an administrative means of promptly [surging the industrial base and/or] mobilizing the nation's economic resources in the event of [a surge situation,] war or national emergency, and to keep current defense programs on schedule, it is a statutory requirement and national policy to require contractors to use industrial priority ratings and allotment authority to support military procurement (see 1-307).

correlating industrial capabilities and military requirements for the orderly retention, improvement, and rapid application of industrial capability to military production during [a surge situation or a national] emergency.

1-2203 Policy.

(a) The Department of Defense will conduct Industrial Preparedness Planning to assure capability for the sustained production of essential military items to meet the needs of the US and Allied Forces during [a surge situation or national] emergency.

(b) In planning for the production of selected items, preference shall be given to the use of privately-owned facilities, so as to minimize the need for Government investment. Government-owned production facilities will be included in the industrial base only when:

(i) private industry is unable or unwilling to provide the facilities necessary to support DOD requirements; or

(ii) they are determined to be necessary for reasons of national security or to assure a quick response capability to meet fluctuating or job lot demands.

(c) Current procurements will be integrated, when applicable, with Industrial Preparedness Production Planning requirements.

(d) [Mobilization] Planned Producer - An industrial activity which has indicated its willingness to produce maintain/repair military items during mobilization in a national emergency by consummation a Production Planning Schedule (DD Form 1519) or an appropriate contractual document, e.g. DATA Item Description (DID).

1-2201(e) [Surge Planned Producer - An industrial activity or Government-owned, Government-operated; or Government-owned, Contractor-operated facility which has indicated its willingness to produce, "maintain/repair military items during surge conditions by consummation a production planning schedule (DD Form 151a) or an appropriate contractual document, e.g. Data Item Description (DID).]

[(f)] Planned (or Planning) Item - Any item selected for industrial preparedness planning under the criterial of DOD Instruction 4005.3, "Industrial Preparedness Planning."

[(g)] Surge - The accelerated production/maintenance/repair of selected items to meet contingencies short of a declared national emergency. Only existing peacetime program priorities will be available to obtain materials, components, and other industrial resources necessary to support accelerated program requirements; however, increased emphasis may be placed on use of these existing authorities and priorities.

1-2202 General. The Industrial Preparedness Planning (IPPP) program is conducted jointly among DOD components and industry to provide a means for

GENERAL PROVISIONS

Part 22 - Industrial Preparedness Production Planning

1-2200 Scope of Part. This Part establishes uniform procurement policy guidance and procedures for the Department of Defense in planning with industry for the establishment and retention of industrial base capability essential to national defense for production during periods of [Surge Production and] national emergencies. [DOD Instruction 4005.3, Industrial Preparedness Planning Procedures]

1-2201 Definitions

(a) Industrial Preparedness Planning - Plans designed to maintain an adequate industrial base to support DOD requirements for selected essential military items in a [surge situation or a] national emergency.

(b) Industrial Base - That part of the total privately-owned and Government-owned industrial production and maintenance capacity of the United States, its territories and possessions, as well as capacity located in Canada, expected to be available during emergencies to manufacture and repair items required by the military services.

(c) Emergency (National) - A condition declared by the President or Congress by virtue of powers previously vested in them which authorizes certain emergency actions to be undertaken in the national interest. Actions to be taken may include partial or total mobilization of national resources.

DEFENSE ACQUISITION REGULATION (DAR) CHANGES

The recommended changes to the DAR are to:

Formalize the use of option clauses to satisfy surge and mobilization requirements. New surge option clauses have been added

Integrate surge/mobilization planning requirements and capital investment incentives into advance procurement plans.

Adds definitions of surge, mobilization to Part 22 - Industrial Preparedness Production Planning.

REFERENCES, continued

- (f) DoD Instruction 5126.44
- (g) DoD Instruction 5000.2
- (h) DAR 4-106 & 107
- (i) DAR 3-508.4

C. REPORTING REQUIREMENTS

The reporting requirements prescribed herein are exempt from formal approval and licensing in accordance with paragraph III.D.3. of DoD Directive 5000.19 (reference (b)).

D. EFFECTIVE DATE AND IMPLEMENTATION

This Directive is effective immediately. Two copies of implementing regulations shall be forwarded to the Under Secretary of Defense for Research and Engineering (Acquisition Management) within 60 days.

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2. Guidelines for making trade-offs among and within the various factors are important particularly among the performance characteristics of the system in relationship to the development, manufacturing/industrial base, operating, and support costs, the delivery schedule, production rate, acceleration rate, surge requirements, lead time, total quantity, and the qualitative requirements applicable to the procurement.

3. The Source Selection Plan would complement the Advanced Procurement Plan and should summarize the overall acquisition strategy contemplated for the system. The plan will also include a description of the evaluation techniques to be used, a schedule for all significant event required between the designation of the SSA and the signing of definitive contract(s). The plan will also address who will produce and the methods to be used to produce an independent cost estimate to assist in determining the most probable costs (development, production, and support; especially the ability to meet the design to cost objectives) of each competitor's proposal. The Source Selection Plan shall state how the independent cost evaluation is to be used. All independent estimates generated shall be retained as a part of the source selection documentation.

D. Source Selection Authority Report

1. The report ultimately prepared for the Source Selection Authority for selection decision shall make the relative differences between competitors' proposals and their capabilities clear and definitive as to strengths, weaknesses and risks in terms of the evaluation criteria in the approved Source Selection Plan.

2. To maintain an effective checks and balances system during the source selection process, the functions and responsibilities for proposal solicitation and evaluation and the functions for the source selection decision shall be separated, but not isolated.

3. The SSA will assure that evaluation group structure, with the minimum number of members consistent with solicitation evaluation requirements, is established and effectively employed.

4. The complexities and demands of the activities associated with selection of contractual sources require knowledgeable and professionally competent people who are experienced in the matters and problems to be evaluated. A balanced representation from functional and operational areas (including other DoD Components and Government agencies), as appropriate, will be maintained. Requests for manpower support made by the director of the source selection evaluation may not be rejected except as limited by paragraph III.A.3.a.

C. Source Selection Planning

1. Prior to the issuance of the solicitation or draft versions of the solicitation, a Source selection plan shall be approved by the SSA. The plan will include the evaluation criteria in relative order of importance. In developing the criteria, a proper balance shall be established among cost, schedule, engineering, manufacturing/industrial base, management, test and evaluation, and other factors as appropriate.

ties, offerors are requested to take these factors into consideration and set forth the unit cost in the space provided below for the surge option quantities. If the offeror does not indicate a unit target cost in the space(s) provided below, it will be interpreted by the Government to mean that the unit cost shown in the schedule is the unit target cost applicable to the option quantity.

3. Varying cost may be offered for the surge option quantities depending on the quantities actually ordered and the date or dates when ordered.

Surge Option Quantity Unit Target Cost \$ _____ ea (CLIN _____).

Surge Option Quantity Unit Target Cost \$ _____ ea (CLIN _____).

4. Failure to agree to a cost in any negotiation resulting from the exercising of this option clause shall be a dispute concerning a question of fact within the meaning of the clause of this contract entitled "Disputes". However, nothing in this clause shall excuse the contractor from proceeding with the performance of the contract as changed.

7-204.70b. Use when the item is identified as a surge item but there is not a requirement for a Data Item Description

Surge Option Clause (for use when no Production Surge Plan is used)

1. The Government may increase the quantity of the supplies called for herein, not to exceed _____ percent and at a unit target cost (set forth below) the targets will be negotiated at the time of exercise. The contracting officer

will exercise this Surge Option Clause for increased quantities, by giving written notice to the contractor, calling forth the quantity and delivery any time prior to the acceptance by the Government of the last scheduled item on the contract.

2. Inasmuch as the unit cost for the basic quantity may contain starting load, testing, tooling, transportation and other costs not applicable to option quantities, offerors are requested to take these factors into consideration and set forth the unit cost in the space provided below for the surge option quantities. If the offeror does not indicate a unit target cost in the space(s) provided below, it will be interpreted by the Government to mean that the unit cost shown in the schedule is the unit target cost applicable to the option quantity.

3. Varying costs may be offered for the surge option quantities depending on the quantities actually ordered and the date or dates when ordered.

Surge Option Quantity Unit Target Cost \$ _____ ea (CLIN _____).

Surge Option Quantity Unit Target Cost \$ _____ ea (CLIN _____).

4. Within ___ days from the date of award of this contract the contractor will furnish the contracting officer delivery schedules representing the maximum rate of delivery achievable for items in this contract on a single shift, single shift with premium pay (overtime), two shifts, three shift, or any achievable combination of these which will accelerate production of the items in this contract.

5. The contractor will not be required to deliver at a rate greater than the maximum delivery rate developed under the requirement of the preceding paragraph.

6. Failure to agree to a cost in any negotiation resulting from the exercising of this option clause shall be a dispute concerning a question of fact within the meaning of the clause of this contract entitled "Disputes." However, nothing in the clause shall excuse the contractor from proceeding with performance of the contract as changed.]

General Provisions

Part 15 - Options

1-1501 Definition.

[(a) - Option.] As used in this Part, an option is a unilateral right in a contract by which, for a specified time, the Government may elect to purchase additional quantities of the supplies or services called for by the contract, or may elect to extend the period of performance of the contract.

[(b) Surge Option. A unilateral right in a contract by which, for the delivery period of the contract, the Government may elect to purchase additional quantities of supplies or services called for by the contract to support exceptional or unusual military requirements short of national emergency, or in support of a friendly foreign Government.]

1-1503 Procedures.

(a) If a contract is to contain an option clause, the solicitation must contain an appropriate option provision. The contract shall limit the additional quantities of supplies or services which may be procured, or the duration of the period for which performance of the contract may be extended under the option and will fix the period within which the option may be exercised. This period shall be set so as to afford the contractor adequate notice of the requirement for performance under the option but with respect to service contracts may extend beyond the contract completion date when exercise of the option would obligate funds not available in the fiscal year in which the contract would otherwise be completed. In fixing the period within which the option may be exercised, consideration shall

be given to (i) necessary lead time in order to assure continuous production and (ii) the time required for additional funding and other necessary approval action. The period specified for exercising the option shall in all cases be kept to a minimum. [The Surge Option is used not only for increased quantities but as an entrance into an on-going contract to satisfy unusual or exceptional situations short of national emergency or in support of friendly foreign Governments, therefore it is necessary to utilize the maximum time available, e.g., the delivery of the last item in the contract schedule.] The quantities and the period under option and the period during which the option may be exercised shall be justified and documented by the contracting officer in the contract file. If the contract is to be negotiated, the determination and findings shall set forth the approximate quantity to be awarded and the extent of the increase to be permitted by the option.

(b) If exercise of the option would result in increased quantities of supplies, the option may be expressed in terms of (i) percentage of specific contract line items, (ii) a number of additional units of specific contract line items, or (iii) additional numbered line items identified as the option quantity with the same nomenclature as line items initially included in the contract. If exercise of the option would result in an increase in the performance of services by the contractor, the option may similarly be expressed in terms of percentages, increase in specific line items, or additional numbered line items, expressed in terms of the units of work initially used in the contract such as man hours, man years, square feet, pounds or tons handled. If exercise of the option would result in an extension of duration of the contract, the option may be expressed in terms of an extended terminal date or of an additional time period, such as days, weeks, or months.

(c) Solicitations which allow the offer of option quantities at unit prices which differ from the unit prices for the basic contract quantities shall also state that varying prices may be offered for the option quantities depending on the quantities actually ordered and the date or dates when ordered. However, if the solicitation contains an Evaluation of Options provision pursuant to 1-1504, it shall also specify the price at which the options will be evaluated (e.g., highest option price offered or option price for specified quantities or dates).

1-1506 Examples of Option Clauses. Examples of Option clauses are set forth in 7-104.27 and 7-1903.22. [Examples of Surge Option Clauses are set forth in 7-104.106 and 7-204.70.]

PROCUREMENT BY NEGOTIATION

systems or material to provide incentives to contractors to invest in severable plant equipment capital assets as authorized herein (see 1-315). Such clause must be tailored to the requirements of the individual situation, and then only after a careful analysis of the benefits in each case is made, to assure optimum results are obtained for the Government. This clause would become operative in the event that the contract or program is terminated or funds are not provided in subsequent fiscal years for the planned acquisition upon which the investment decision was based. Such clause may permit the Government to acquire specific capital investments at no more than the depreciated value. This value may be determined by considering a combination of investment incentives, income tax credits or incentives, and allowable depreciation costs pursuant to cost principles established in Section XV.

(b) Scope.

(1) This technique is designed to transfer to the Government some of the risk associated with acquisition of certain capital assets by contractors. Its purpose is to cover only specifically identified cost-effective capital assets. It is not to be used to override the general policy that all facilities needed for the performance of Government contracts will be provided by the contractor as set forth in Section XIII.

(2) Capital assets which may be covered by such an investment clause are subject to the following criteria:

- (i) includes only severable industrial plant equipment, and other types of severable plant equipment with a unit value in excess of \$10,000, including associated accessories which would be capitalized in accordance with the contractor's disclosed accounting practices, but excluding real property
- (ii) the capital investment would not otherwise be made by the contractor except to substantially benefit the program(s) involved;
- (iii) the overall savings that will accrue to the Government on the program(s) for covered equipment exceeds the related investment costs by a margin sufficient to make the acquisition economically viable;
- (iv) the savings that will result from use of this equipment, as developed under (c) below, will be reflected in the pricing of the individual contracts.

(c) Determination. Prior to implementing this investment clause, the contracting officer shall make a written determination that the contractor will not make the investment without the use of this technique. This determination should be detailed and include the following elements:

- (i) consideration of the alternatives of acquiring such equipment through the manner listed in 13-301(c);
- (ii) an analysis of the costs of the investment and the overall cost savings to the Government, including the payback quantities and/or payback periods;
- (iii) an assessment of the degree of competition present for the proposed requirement. If a competitive environment is present, the competition may cause the firms to consider bearing the total risks for the investments. When this technique is to be used, it shall be a factor in the source selection evaluation criteria: reflecting favorably on those contractors based on the extent to which they accept the associated risks.

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delivery of the production items. The chart tells the story of time, cost and quantity of required items, illustrating milestones which must be recognized in the decision making process. However, it is important to recognize that the format of the milestone chart is flexible, because the same milestones may not be present in every procurement program.

ILLUSTRATIVE PROCUREMENT PLAN FORMAT
PROCUREMENT PLAN NO. _____

PROGRAM _____
PROGRAM MANAGER _____

DESCRIPTION OF PROGRAM / SYSTEM / COMMODITY, ETC.

APPROVED: Procurement Representative _____, date _____
Program Manager _____, date _____

(NARRATIVE PORTION)

1. *A description of the program, item or system.* Include the customary military nomenclature, a brief nontechnical description and statement of general application, and a description of associated materials and services. Discuss related in-house effort.
2. *Program Funding (R&D and Production) including a summary of monies in the FYDP/Budget Submissions.* Include specific references to budget line items and program elements, where applicable, estimated production unit cost, and total cost for remaining production. Describe the estimated cost for the contracts and how the cost was derived.
3. *Delivery Requirements, both R&D and Production Contracts.* Describe the basis for establishing the delivery requirement including surge and mobilization and justification for such urgency if it results in concurrency of development/production or is a basis for justification for sole source procurement.
4. *Applicability of a Decision Coordinating Paper (DCP) or Program Memorandum Defense System Acquisition Review Council (DSARC) or Internal Service Reviews.* Describe the options set forth in the DCP / Program Memorandum and delineate which option the Procurement Plan (PP) supports. Delineate the DSARC/Internal Reviews on the milestone chart.
5. *Background and Procurement History (a brief factual summary).* Provide a brief statement of the technical and contractual history of the material or services being procured.
6. *Discussion of Program Risk, Including Technical, Cost, and Schedule Risk.* Provide a discussion of major areas of technical risk, and describe what efforts are planned or

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ARMED SERVICES PROCUREMENT REGULATION

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20. *Procurement Approach for each Proposed Contract.*

- a. *Item description.*
- b. *Estimated cost.*
- c. *Proposed sources and basis for selection.* If sole source is recommended, discuss why competition cannot be used.
- d. *Source selection procedures.* If formal source selection procedures will be used, discuss milestones for development of the plan and provide a general overview of how the selection is to be conducted.
- e. *Contract type.* Provide rationale for recommendation of contract type.

[f. Manufacturing. Briefly describe the capital investment incentives (if any) to be employed to attain the significant program objectives described in item 16.

- g. *Negotiation authority recommended.* Discuss basis for recommendation of negotiation exception. If the PP is used to support a Secretarial D&F, provide appropriate information required by Appendix J, if not already provided elsewhere.
- h. *Reprocurement data.* Provide a complete discussion of use of reprocurement data to increase competition, including funding available for reprocurement data and the contractual approach to acquiring such data, including proprietary rights and patent considerations.
- i. *Other considerations, as applicable.* Discuss application of Small Business, Labor Surplus Area, the Industrial Readiness Program, The Defense Production Act, energy conservation measures, standardization concepts, foreign sales implications, special contractual clauses and ASPR deviations.
- j. *Alternative procurement approaches considered.* Briefly discuss the merits and shortcomings of other approaches including contingency plans.
- k. *Milestones for the procurement cycle.* Address the following subjects and any others, as appropriate:
 - PP Approval
 - D&F Approval
 - Completion of preparation of procurement package
 - Statement of Work
 - Specifications
 - Data requirements
 - Purchase request
 - Issuance of Solicitation
 - Evaluation of proposals, audits, and field reports
 - Beginning and completion of negotiations
 - Contract preparation, review, and clearance
 - Contract award

DATA ITEM DESCRIPTION	IDENTIFICATION NO.	
1. TITLE	AGENCY	NUMBER
<p>Production Surge Plan</p> <p>3.1 The Production Surge Plan describes a contractor's capability to rapidly accelerate and sustain production utilizing existing facilities and equipment without a declared national emergency, declaration of war, or mobilization and use of emergency war powers.</p> <p>3.2 The Production Surge Plan provides data on the</p>	4. APPROVAL DATE	
<p>7. APPLICATION/INTERRELATIONSHIP</p> <p>7.1 This Data Item Description should be applied in solicitations/contracts for which a production surge capability for select critical items is required.</p> <p>7.2 The Contract Data Requirements List (DD Form 1423) should require that any production changes which impact the Production Surge Plan be submitted as revisions within two weeks of their occurrence.</p> <p>7.3 This Data Item Description may be used independently or in conjunction with but not in lieu of DI-r-7046.</p>	5. OFFICE OF PRIMARY RESPONSIBILITY	
	6. ODE REQUIRED	
	7. APPROVAL LIMITATION	
	8. REFERENCES (MANDATORY AS CITED IN BLOCK 10)	
	9. MEDL NUMBER(S)	
10. PREPARATION INSTRUCTIONS		
<p>10.1 <u>General</u> - The Production Surge Plan shall describe the contractor's capability to rapidly accelerate production utilizing existing facilities and equipments in a peacetime environment (no declared national emergency, declaration of war, or mobilization and use of emergency war powers). The plan shall be predicated on utilization of peacetime program priorities to obtain materials, components, and other industrial resources necessary to support the accelerated production requirements.</p>		
<p>10.2 <u>Format</u> - Unless otherwise specified on the contract Data Requirements List (DD Form 1423), the Production Surge Plan shall be in the contractor's format.</p>		
<p>10.3 <u>Content</u> - As a minimum, the Production Surge Plan shall consist of the following:</p> <p>a. The maximum sustained rate of production utilizing a single work shift (1-8-5), a single work shift supplemented by authorized premium pay (overtime effort), a double work shift (2-8-5), and a triple work shift (3-8-5).</p> <p>b. A list by nomenclature and part number of nonsubcontracted long lead critical or pacing items which could adversely impact the production</p>		

3. DESCRIPTION/PURPOSE (Continued)

sustained production rate, long lead critical or pacing items personnel requirements, other contracts with surge production provisions, and probable surge impact. This data provides for surge planning of select critical items that are identified on the Surge Items List.

10.3B (Continued)

rates identified in para 10.3a.

c. A list by nomenclature and part number of subcontracted long lead critical or pacing items which could adversely impact the Production rates identified in para 10.3a. Subcontractors and vendors shall be identified by name and address for each critical or pacing item. This requirement shall flow down to which ever subcontractor tier (level) is necessary to adequately identify the critical or pacing item(s).

d. Identification of all personnel requirements including how additional personnel will be recruited, trained, and assigned.

e. A list of contracts being performed at the contractor's facility that have production surge provision or could reasonably be presumed to be surged. The list shall identify the contract number, the items(s) and the Defense Materials System and Defense Priorities System priorities assigned to each contract.

f. What impact surging this contract would have on the performance of any other Government contract that might be concurrently surged with this contract. What impact surging this contract would have on the contractor's commercial business.

g. A list of tooling and/or equipment down to the lowest tier subcontractor that could be acquired that would increase production rates and remain within the current physical limitations. Estimate the cost (include installation costs) and delivery leadtime for the acquisition of the tooling and/or equipment. Data obtained under this paragraph will not be used in the preparation of the basic plan but may be used by the Government for developing additional Surge capability if deemed essential.

Revision of DoD Directive 4005.1

(Industrial Resources)

This directive was revised to revitalize, and more clearly define responsibilities for, the use and planning of industrial resources.

Key TFIRE recommendations are:

- Broadens scope of directive - integrated approach to consideration of industrial resource issues
- Provide an umbrella document for related functional areas
- Establish a single office with responsibility for industrial resource concerns
- Define and delineate responsibilities
- Develop a DoD composite Industrial Base Analysis
- Insure adequate consideration of maintenance planning and operations in the allocation of industrial resources
- Require, as appropriate, use of lead time and critical path studies.

These inputs are consistent with the changes proposed in the system acquisition series (DoDD 5000.1 and DoDI 5000.2).

DRAFT



NUMBER 4005.1

Department of Defense Directive

SUBJECT: Industrial Resources

References: (a) through (p), see Enclosure 1

A. PURPOSE

This directive reissues reference (a), and establishes DoD policy and assigns responsibilities governing planning of industrial resources for programmed peacetime, surge, and mobilization production of essential military equipment.

B. AUTHORITY

1. The emergency preparedness responsibilities assigned to the Secretary of Defense under Section 401, paragraphs (5), (7), (9), (10), (11), (12), and (13), of Executive Order 11490 (reference (b)).

2. The production readiness functions in support of peripheral war as defined in Defense Mobilization Order II (DMO-2) (revised) (reference (c))

C. CANCELLATION

Reference (a) is hereby superseded and canceled.

D. APPLICABILITY

The provisions of this Directive apply to the Military Departments and the Defense Logistics Agency (hereinafter referred to collectively as "DoD Components").

E. DEFINITIONS

Terms used in this Directive are defined in Enclosure 2.

F. POLICIES

DoD Components will develop and issue implementing instructions which are consistent with the following:

1. Planning and management actions will be conducted to ensure that adequate industrial resources are available to support peacetime, surge, and mobilization materiel production and maintenance requirements. Such actions and planning will include the integrated and comprehensive consideration of all the factors which comprise or affect the industrial base.

DRAFT

References

-) DoD Directive 4005.1, "DoD Industrial Preparedness Production Planning," July 28, 1972 (hereby canceled)
-) Executive Order 11490, "Assigning Emergency Preparedness Functions to Federal Departments and Agencies," October 28, 1969
-) Defense Mobilization Order II (DMO-2) (Revised), "Maintenance of the Mobilization Base (Department of Defense, Atomic Energy Commission and the Maritime Administration)," March 6, 1957
-) DoD Instruction 4005.3, "Industrial Preparedness Production Planning Procedures," July 28, 1972
-) DoD Manual 4005.3-M, "Industrial Preparedness Planning Manual," authorized by DoD Instruction 4005.3
-) DoD Directive 4275.5, "Acquisition and Management of Industrial Resources," July 13, 1978
-) DoD Instruction 4200.15, "Manufacturing Technology Program," July 14, 1972
-) DoD Instruction 4400.1, "Priorities and Allocations - Delegation of DO and DX Priorities and Allocation Authorities, Rescheduling of Deliveries and Continuance of Related Manuals," November 16, 1971
-) DoD Instruction 4210.4, "Studies on the Availability of Materials," October 6, 1971
-) DoD Directive 4005.16, "Diminishing Manufacturing Sources and Materials Shortages," December 3, 1976
-) DoD Instruction 4170.9, "Defense Contractor Energy Shortages and Conservation," May 16, 1978
-) DoD Directive 5000.1, "Major Systems Acquisitions," March 19, 1980

Enclosures - 2

1. References
2. Definitions

b. DoD Components are to exchange information required for industrial preparedness planning in a timely, efficient, and expeditious manner. DoD Components requiring industrial preparedness information other than that included on the DD Form 1519 will assure that their requests do not violate the provisions of the Federal Reports Act of 1942 as implemented by OMB Circular A-40 and DoD Directive 5000.19 (reference (p)). Every effort must be made to minimize additional burdens upon the activities providing the required information.

15. Coordination of Current Procurement with Industrial Preparedness

Each DoD component shall coordinate current procurement and industrial preparedness planning in order to optimize the capability of the industrial base to respond to a national emergency situation.

I. EFFECTIVE DATE AND IMPLEMENTATION

This Directive is effective immediately.

Develop implementing instructions to comply with this Directive and forward two copies to OUSDRE, not later than 120 days after its effective date.

ness planning for each planning item. This could include industry-wide capability studies, special studies or recommendations for Department of Commerce Industry Evaluation Board (IEB) studies, as defined in DoD Manual 4005.3-M (reference (e)). However, agreements with individual manufacturers, including subcontractors, for an allocation of their capacity for the production of a planned item(s) in an emergency, must be reflected in an appropriate contractual document or a DD Form 1519 in accordance with reference (e).

b. Department of Commerce IEB studies will be utilized when appropriate as a method for collecting data for use in horizontal planning for selected items or groups of similar items that are produced by certain critical industries. The identification of these items will be made by a joint DoD - Department of Commerce task force. However, the DoD Components are encouraged to recommend items for IEB studies to the USDR&E at any time. Horizontal planning for items identified by the task force will be assigned to a DoD Component, which will work with the other DoD Components and the Department of Commerce to obtain the necessary capacity data.

14. Industrial Preparedness Data

a. To maintain its validity, industrial preparedness data will be updated periodically, as defined in reference (d), or more frequently when a significant change in production capability invalidates planned schedules. A conscious effort must be made to level the workload as much as possible throughout the planning cycle to avoid peak production work periods.

b. Provide Government-owned equipment in accordance with the DAR to planned producers when it is in the interest of the Government:

c. Leasing of idle Government-owned plants to planned producers for military and commercial work pursuant to 10 U.S.C. 2667.

d. Reimbursing planned producers for participation in industrial preparedness planning when justified by the required effort, importance of the item to military requirements and potential savings in M-Day stocks.

e. Financial assistance to expand productive capacity and supply, pursuant to Title III of the Defense Production Act (reference (n)).

f. Government technology funding, though Mantech or other programs, as an incentive for development of surge/mobilization enhancing plant modernization programs.

g. The formulation of a joint industry/government contractual agreement as part of an acquisition or logistic contract to incentivize, indemnify, reward, and where appropriate to introduce manufacturing technology with the objective of encouraging industrial modernization for increased responsiveness.

13. Type and Depth of Industrial Preparedness Planning

a. To ensure the most effective and realistic planning approach, each DoD component will determine the specific type and depth of industrial prepared-

10. Industrial Preparedness Planning for mobilization with industry will be based on a two-year planning period. Annual Secretary of Defense guidance prescribes a target date by which DoD Components must attain their materiel support inventory objectives. Post M-Day production response estimates required for this planning and programming should make maximum use of data from these planning periods to ensure that war reserve materiel programs are based on the most accurate and recent possible information.

11. The foundation of the industrial preparedness program is the realistic determination of the total production requirements necessary to support the post-M-Day force. These requirements, usually expressed as monthly production rates, are submitted to selected production sources having the required capacity or the capability to convert. Requirements calculations will include the mix of essential items and weapons systems needed to support the force structure expected to be in existence during the time period in question.

12. Incentives for Industry

To encourage more active and effective industry participation in industrial preparedness planning, use of incentives such as the following will be considered:

a. Negotiation of current contracts of planned items with planned producers under the authority of the DAR.

would yield significant improvements in post-M-Day production response capability. Additionally, consideration shall be given to the potential for using surge capacity and planned producers as a means of reducing the investment in on-hand stocks and minimizing losses through obsolescence.

8. Industrial preparedness planning shall be limited to producers located in the U.S. and Canada; however, foreign sources are to be identified when they are defense suppliers (see reference (d)). Industrial preparedness planning is intended to cover contingencies wherein it is assumed that the industrial base has not been damaged by enemy attack. However, to minimize the effects of a possible enemy attack on the defense industrial base, plans should be developed with plants in dispersed locations whenever possible, or alternate production sources should be established when appropriate.

9. At the outset of a national emergency, the Federal Emergency Management Agency has the responsibility to consider apply^{ing} controls on the economy to channel industrial effort from commercial to emergency support activities. Similarly, the Department of Defense has authority to suspend or modify normal contracting procedures to streamline the acquisition process and minimize lead time. Accordingly, plans should be made to minimize the administrative lead time involved in the placement of post-M-Day contracts. Use of letter contracts, prescribed in the Defense Acquisition Regulation (DAR) (reference (o)), and other time-saving measures should be considered. For proper evaluation of these possible actions, reliable information must be available on current assets, on production lead times of the required end items and on administrative lead times to place contracts or modify contracting procedures.

a. Private industry is unable or unwilling to provide the facilities necessary to support DoD requirements; or

b. They are determined to be necessary for reasons of national security or to ensure a quick response capability to meet surge or mobilization demands.

4. Establishment or expansion of Government-owned production/maintenance facilities to overcome deficiencies in the privately-owned sector of the industrial base will be governed by the provisions of DoD Directive 4275.5 (reference (g)).

5. To ensure a responsive peacetime industrial base capable of rapid expansion for surge or mobilization, lead time and critical-path studies will be used to identify constraints and bottlenecks causing long lead times and/or high costs. DoD Components will propose measures to alleviate these problems, and will continue to monitor the status of these efforts as improvements are implemented. For those instances where adequate incentives do not exist for private investment, USDR&E will develop proposals for Government incentives or financial assistance through DoD appropriations or Title III of the Defense Production Act of 1950. (reference (n)).

6. Government-owned industrial facilities will be maintained in an adequate state of readiness to meet emergency requirements.

7. Consideration shall be given to spreading peacetime acquisition for planned items among more than one source when the additional active producer(s)

b. acquaint industry with its anticipated wartime tasks, to provide for a smooth transition to surge or mobilization production;

c. maintain a current record of competent producers (active and prospective) and their capabilities;

d. determine what required mobilization items cannot be provided by conversion of private industry, in order to establish requirements for construction of new government-owned facilities;

e. minimize requirements for new construction in wartime by proper utilization of existing facilities;

f. Minimize, and seek to eliminate, over-commitments of plant capacity for surge and mobilization production of planned items.

g. offset shortfalls in War Reserve quantities of materiel, to the extent practical.

2. In planning for the production of materiel, preference shall be given to privately-owned facilities, so as to minimize the need for Government-financed facilities.

3. Government-owned production/maintenance facilities will be included in planning when:

3. Each DoD Component will:

a. Provide to USDR&E the Production Base Analysis, an annual assessment of the industrial base as viewed by such component. The assessment will identify the overall condition of the base, suggested corrective actions, and estimated costs and time required for implementing the corrective actions.

b. Ensure that industrial base issues are considered early in the acquisition process for new weapons systems, in accordance with DoD Directive 5000.1 (reference (1)).

c. Ensure that industrial base improvement actions are prioritized and justified in accordance with the results of component production base analyses.

d. Perform preparedness planning with industry in accordance with DoD Instruction 4005.3 (reference (d)) and Manual 4005.3-M (reference (e)).

e. Provide such information as required by USDR&E to assist him in carrying out his responsibilities described under G.1. (above).

H. PROCEDURES FOR INDUSTRIAL RESOURCE AND PREPAREDNESS PLANNING

1. Planning with industry for surge and mobilization will:

a. determine where the most essential military items can be obtained;

time, surge, and mobilization production of military materiel. Based upon input from DoD components, propose actions to alleviate any availability problems identified. (reference (i), (j), and (k)).

h. Monitor industrial capability and responsiveness, including transportation, maintenance and logistics planning and critical civilian labor projections to assess the impact and provide recommendations to the responsible agency.

i. Coordinate with the Under Secretary of Defense for Policy, the Assistant Secretary of Defense for Legislative Affairs, and the Federal Emergency Management Agency, to: (1) ensure that steps are taken to identify laws, regulations, and procedures that would hinder timely, efficient acquisition of critical items; (2) establish or propose a system of waivers or reliefs from such laws, regulations, and procedures which could be put into effect in an emergency; (3) survey administrative lead times to process waivers, and recommend means to reduce these lead times; (4) recommend changes to existing laws, propose new laws and authority, or comment on proposed laws or regulations, as appropriate.

2. The Assistant Secretary of Defense for Manpower, Reserve Affairs and Logistics will develop and issue policy, Defense Guidance and plans for the acquisition and management of industrial resources to support peacetime, surge and mobilization maintenance operations.

(2) Capital investment for the acquisition of new plants or equipment (reference (f));

(3) Industrial Preparedness Planning (IPP) (reference (d));

(4) Manufacturing Technology (ManTech) (reference (g));

(5) Energy Conservation and Management (ECAM);

(6) Industrial Preparedness Measures (IPM) (reference (d));

(7) Operation of the Defense Industrial Plant Equipment Center (DIPEC); and

(8) Industrial manpower planning costs for surge and mobilization production.

(9) Other, as appropriate.

f. Develop procedures for and administer the DoD priorities and allocations program in accordance with DoD Instruction 4400.1 (reference (i)), and maintain a consolidated list of DoD critical systems and items for which detailed preparedness planning will be conducted in accordance with DoD Instruction 4005.3 (reference (h)).

g. Develop procedures for obtaining, reviewing, and disseminating information on the availability of materials and energy required for the peace-

a. Develop and issue appropriate policy that defines the circumstances to which the industrial base is expected to respond and a timetable for DoD Component efforts to improve industrial responsiveness.

b. Develop and issue policy and Defense guidance for the planning analysis, programming and budgeting, of the industrial base.

c. Collect, consolidate, and analyze component Production Base Analyses, data from federal agencies (such as the Departments of Commerce, Labor, and Energy, and the Federal Emergency Management Agency (FEMA)) and information provided by industry, to develop a comprehensive analysis of the ability of the industrial base to respond to peacetime, surge, and mobilization requirements. These inputs will be used to prepare requisite DoD actions to eliminate constraints which inhibit industrial responsiveness and preparedness, and to determine priorities for optimal allocation of DoD resources.

d. Develop procedures to guide the allocation of available surge and mobilization industry capacity, to avoid conflicts or overcommitment and to ensure coordinated planning with industry.

e. Provide oversight and guidance for, and perform integrated cost-benefit and trade-off analyses of, the following program element categories in order to assure effectiveness and balance:

(1) Existing DoD-owned production facilities and resources (expansion, replacement, rehabilitation, modernization, layaway, retention, protection, and maintenance of idle industrial facilities) (reference (f));

2. The Department of Defense will insure that an industrial base capable of a sustained state of industrial preparedness exists for the production/maintenance/repair of essential military items to meet the needs of the approved U.S. and Allied Forces either through an organic depot or a commercial capability. Accordingly, the Department of Defense will provide for a state of industrial preparedness to:

a. Achieve programmed acquisition of military materiel in a timely, cost-effective manner; and

b. Rapidly expand production of essential military materiel to meet surge and mobilization demands of the U.S. and its allies.

3. Planning in accordance with DoD Instruction 4005.3 (reference (d)) and DoD Manual 4005.3-M (reference (e)) will include production/maintenance/repair of equipment to meet sustained readiness requirements effectively and efficiently during peacetime, surge, and mobilization and to ensure a ready and controlled source of technical competence and resources necessary to meet military contingencies.

G. RESPONSIBILITIES

1. The Under Secretary of Defense for Research and Engineering (USDR&E) will be the principal staff assistant to the Secretary of Defense on all matters relating to the capability of the industrial base to meet the peacetime, surge, and mobilization production requirements of the Department of Defense, and shall administer an industrial resource program. To carry out this task USDR&E will:

(Encl 1)

- (m) Defense Production Act of 1950, Title III (50 U.S.C. App. 2091 et seq.)
- (n) Defense Acquisition Regulation (3-408, 3-216.2 and 13-405)
- (o) DoD Directive 5000.19, "Policies for the Management and Control of Information Requirements," March 12, 1976

DEFINITIONS

1. Approved Forces - The level of forces approved by the Secretary of Defense for industrial preparedness planning.

2. Emergency (National) - A condition declared by the President or Congress by virtue of powers previously vested in them which authorizes certain emergency actions to be undertaken in the national interest. Actions to be taken may include partial or total mobilization of national resources.

3. Industrial Base - That part of the total privately-owned and Government-owned industrial production and maintenance capacity of the United States, its territories and possessions, as well as capacity located in Canada, expected to be available to manufacture and repair items required by the approved forces.

4. Industrial Preparedness Planning - Plans designed to maintain an adequate industrial base to support DoD peacetime, surge, or mobilization, requirements for selected essential military items (planned items - see 8 below).

5. M-Day - The term used to designate the day on which mobilization is to begin.

6. Mobilization - The act of preparing for war or other emergencies through assembling and organizing national resources; the process by which the Armed Forces, or part of them, are brought to a state of readiness for war or other national emergency. This includes assembling and organizing personnel, supplies, and materiel for active military service.

national emergency. This includes assembling and organizing personnel, supplies, and materiel for active military service.

7. Planned (or Planning) Item - Any item critical component selected for industrial preparedness planning under the criteria of DoD Instruction 4005.3 (reference (d)) and DoD Manual 4005.3-M (reference (e)).

8. Planned Producer - An industrial activity which has indicated its willingness to produce maintain/repair military items during surge or mobilization in a national emergency by consummating a production planning schedule (DD Form 1519) or an appropriate contractual document, e.g. Data Item Description (DID).

9. Surge - The accelerated production/maintenance/repair of selected items to meet contingencies short of a declared national emergency. Only existing peacetime program priorities will be available to obtain materials, components and other industrial resources necessary to support accelerated program requirements; however, increased emphasis may be placed on use of these existing authorities and priorities.

Revision of DoD Instruction 4005.3

(Industrial Preparedness Planning)

This instruction was already under revision at the time of TFIRE's inception. TFIRE provided input to define further and add specificity to the general principles incorporated in DoDD 4005.1.

Key TFIRE recommendations are:

- Simplify title to "Industrial Preparedness Planning"
- Define tools to be used in performing IPP (further conforming changes will be needed in DoD Manual 4005.3-M)
- Require DoD to consolidate component Production Base Analyses, in order to develop a total DoD industrial base assessment
- Require establishment of critical items lists (CILs) at both the OSD and Service levels, and define the relationship between the CIL and the broader Industrial Preparedness Planning List (IPPL), to provide a basis for establishing planning requirements
- Address the inclusion of maintenance requirements in preparedness planning
- Formalize surge option clauses as a planning method
- Provide for coordinated time-phasing of industrial base planning inputs, to assure maximum utility.



NUMBER 4005.3

Department of Defense Instruction

SUBJECT: Industrial Preparedness Planning

- References:
- (a) DoD Directive 4005.1, "Industrial Resources
 - (b) DoD Instruction 4005.3, "Industrial Preparedness Production Planning Procedures", July 28, 1972 (hereby cancelled)
 - (c) DoD 4005.3-M, "Industrial Preparedness Planning Manual",
 - (d) through (h), see enclosure 1

A. PURPOSE

This instruction:

1. Implements preparedness planning of Industrial Resources described in DoDD 4005.1 (reference (a)).
2. Reissues reference (b) to establish policy, assign responsibility, and outline procedures governing Industrial Preparedness Planning (IPP)
3. Authorizes publication of Manual DoD 4005.3-M, "Industrial Preparedness Planning Manual" (reference (c)).

B. CANCELLATION

References (b) and (d) are hereby superseded and cancelled.

C. APPLICABILITY

The provisions of this Instruction apply to (1) the Military Departments and the Defense Logistics Agency, hereinafter referred to collectively as "DoD Components" (2) the Maritime Administration (MARAD).

D. DEFINITIONS

Terms, as used in this instruction, are defined in enclosure 2.

E. RESPONSIBILITIES

1. The Under Secretary of Defense, Research and Engineering (USDR&E) shall:
 - a. Publish and maintain the DoD Industrial Preparedness Planning Manual (DoD 4005.3-M) (reference (c)), which will:

(1) Assign functional responsibilities,

(2) Establish procedures governing industrial preparedness planning for peacetime, surge and mobilization,

(3) Provide guidance on the preparation, content, and supporting documentation of Production Base Analyses (PBA).

(4) Define terms,

(5) Prescribe DD Forms and instructions for their use,

(6) Specify records to be maintained, and

b. Ensure continuous implementation of, and compliance with, the provisions of this Instruction and the DoD Industrial Preparedness Planning Manual (reference (c)) throughout the Department of Defense.

c. Consolidate DoD component Production Base Analyses into a DoD Production Base Analysis.

d. Through the Program Objective Memorandum (POM) cycle, actively support efforts to provide the required resources to eliminate base deficiencies.

e. Based upon Component inputs, maintain a DoD Critical Items List (CIL), which identifies and prioritizes major systems and end items for which industrial preparedness planning shall be performed.

2. Each DoD Component shall:

a. Conduct detailed IPP in accordance with the Industrial Preparedness Planning Manual (reference (c)) and the planning schedule (enclosure 3).

b. Integrate IPP planning, for both surge and mobilization, in the production management of defense systems. Program/Project and Item Managers will be responsible for this integration, as well as for items assigned to them for acquisition/management, in accordance with references (c) and (e). This effort will be coordinated with the DoD Component which has overall procurement responsibility for consolidation and control of IPP efforts.

c. Establish a prioritized item selection system for Industrial Preparedness Planning for surge/mobilization items in accordance with reference (c). Selected end items required for war fighting will constitute the component Critical Items List and will provide the basis for the broader Industrial Preparedness Planning List (IPPL), which will include critical items, components, and supporting equipment.

d. Integrate, as appropriate, the DoD's Diminishing Manufacturing Sources and Material Shortages System and procedures as specified in reference (f) with the IPP effort to help assure timely action is initiated when essential end-item production capabilities are endangered by the loss or impending loss of manufacturing sources or by material shortages.

e. Determine planning/program actions necessary to ensure an adequate industrial base to meet surge/mobilization requirements.

f. Prepare, and submit to the USDR&E, a Production Base Analysis (PBA) in accordance with reference (c). The PBA will include projections of expenditure necessary to establish and maintain an industrial base to meet surge/mobilization requirements, together with supporting documentation.

g. Brief USDR&E on the status of the industrial base, highlighting significant industrial base deficiencies and planning actions, programs, resource requirements and other pertinent information. This briefing should be scheduled so as to enable the results and conclusions of the analysis to be appropriately covered in each DoD component's annual submission of the Program Objective Memorandum (POM).

h. Submit recommendations, as appropriate, for Department of Commerce Industry Evaluation Board (IEB) studies.

i. Submit requirements to the DoD planning (acquisition) component for any item on the IPPL which is not a planning responsibility of the using component.

j. Transmit requirements to the ASPPO in accordance with the schedule of Industrial Preparedness Actions (enclosure 3).

k. Determine surge/mobilization requirements in accordance with reference (g) and execute the planning/program necessary to ensure an adequate industrial base to meet those requirements.

3. MARAD shall annually submit to USDR&E, a description of the status of its production base, highlighting significant industrial base deficiencies

and planning actions, program resource requirements and any other pertinent information.

F. POLICIES AND PROCEDURES

1. Planning Items.

The foundation of mobilization industrial preparedness planning is the realistic determination of the total production requirements necessary to support the approved forces post M-Day. Surge, on the other hand, is not planned on a given scenario but on the ability to accelerate production of needed items to satisfy various situations, using existing facilities and equipment.

a. Mobilization Planning Items - Planning will be accomplished for weapons systems, munitions, missiles, and secondary items which will be required to sustain military operations under a declared national emergency which results in a full or total mobilization. Quantitative requirements for mobilization planning items shall be determined in accordance with the Defense Guidance (reference (g)).

b. Surge Planning Items - Planning will be accomplished for means of accomplishing accelerated production of weapons systems, munitions, missiles, and secondary items determined to be the most critical in support of military requirements in situations short of a national emergency, such as: an undeclared war, deployment of the Rapid Deployment Force, the warning period prior to a national emergency, a need to fill FMS and NATO requirements under support

agreements and/or emergency situations, emergency requirements to fill shortfalls in our current inventory, and a need to replace onhand stocks due to natural disaster. Quantitative planning requirements for surge situations shall be determined by the DoD Components.

c. Surge/Mobilization Planners - Planning for surge/mobilization requirements for new major systems will be included in the systems acquisition plan by the program/project and item managers, coordinated with IPP planners and reported in accordance with reference (h). Detailed planning for other than new major systems will be accomplished by DoD Component industrial preparedness planners. In either case, surge/mobilization planning will include a determination of, to the extent possible, the existing capacity, the maximum and optimum production acceleration rates, the constraints to accelerated production, the leadtime required to initiate production acceleration, and measures and costs to enhance industrial capability (IPM's).

d. Mission requirements Quantitative requirements for systems which are not combat consumable, serve a unique purpose, or are not likely to be replenished will be based on filling the remaining authorized acquisition or inventory objectives AAO as soon as possible using a realistic compression of deliveries, and will be shown as a monthly, or an appropriate periodic, requirement.

e. Maintenance Requirements Requirements for end items, subassemblies and components to support surge or mobilization maintenance activities (rebuild, refurbish) will be included in the mobilization and surge requirements, defined above. Maintenance planning will be in accordance with DoDI 4151.1 (reference (i)) and DoD Manual 4005.3-m (ref (c)).

f. Requirements Tradeoffs In the development of requirements, consideration will be given to the relative economic and logistics trade off between requirements for war reserve stocks (WRS), production items, or maintenance items.

g. Item Selection Item selection and planning will be in accordance with the Industrial Preparedness Planning Manual (reference (c)). Detailed planning will be conducted for those items on the approved Industrial Preparedness Planning List (IPPL). Planning may also be conducted, on an exception basis, to support special or unusual military requirements.

2. Industrial Preparedness Planning (see reference (c))

a. DoD components will select and implement, for items requiring detailed preparedness planning, the appropriate preparedness planning method, such as:

(1) Data Item Description (DID) Contractual document that covers the type of IPP/surge planning data deliverable to the Government.

(2) DD Form 1519 This form is used when DID information is not required to accomplish industrial preparedness production planning.

(3) Direct Industrial Base Planning (DIBP) Alternate method of planning secondary items. Shortened version of DD Form 1519 format is used.

(4) Surge Option Clause Alternate method of planning surge item(s). (Shortened version of DID production surge plan.)

(5) Sector Study Used to survey a distinct segment of the industrial base to determine its capacity for production of materiel.

b. As a minimum, items identified on the Critical Items List, and selected critical sub-assemblies and/or supporting equipment, will be supported by complete vertical planning through the lowest tier practical.

c. Surge/mobilization planning for items not in production during the planning period will be done by negotiating the appropriate document with a planned surge producer listing the item(s) planned for production by such producer. In addition, the planned producer will be furnished a Technical Data Package (TDP) for each item for which he is a planned producer. This TDP will be reviewed and updated to the current configuration of the item(s) each year or at the time the producer's contractual document is exercised with a surge requirement, or shortly thereafter.

d. Planning may take into consideration the buildup to a short-term production level higher than the consumption rate to make up M/S Day stock deficits.

e. Alternatives, including the possible use of approved substitute items, engineering waivers, etc., will be considered in order to spread the deficit "make up" quantity over a reasonable period of time.

f. Mobilization Planning will be accomplished on a biennial basis. Planning will be updated annually when significant changes have occurred in requirements and/or production capability. Surge planning will be on an annual cycle and updated immediately when significant changes occur.

g. Both mobilization and surge planning requirements and production schedules will be presented as monthly, or appropriate periodic, rate.

h. Assumed MDay shall be the first day of each planning period, i.e., October of the fiscal year following the year in which planning is accomplished.

i. Surge planning, being based on real time, can be implemented at any time by issuance of an appropriate contractual document from the contracting officer to the planned surge producer.

3. Production Base Analysis

The PBA will report the condition of the existing defense industrial base and will reflect the results of Industrial Preparedness efforts to satisfy surge and mobilization requirements, and will provide the basis for programming and budgeting for IPM's, including the maintenance, modernization, and expansion of the industrial base, and for long range plans to sustain and improve the base.
The PBA will include:

a. Base utilization status and improvement proposals (Government-owned, Government-operated (GOGO) Government-owned, contractor-operated (GOCO), and contractor owned, contractor operated (COCO) facilities and equipment).

a. Determine the total DoD requirement for that material and forward the result to FEMA for consolidation with essential non-military requirements, and for comparison with total national capacity. If additional capacity is needed, FEMA will take steps to encourage expansion in the private sector, and in the event such measures are unsuccessful, take steps to establish a government-owned production capacity, or other appropriate measures to offset the deficit, or

b. If no commercial requirements exist for the material in question, the USDR&E will either:

(1) Review military requirements and production capacity to determine adequacy of the existing production base and make necessary recommendations to overcome problems, or

(2) Assign responsibility to the appropriate Military Department or other element to perform the function.

2. DoD Components should make maximum use of appropriate existing forums (e.g., DoD Priorities and Allocations Council, DoD Materials Availability Steering Group) to surface and discuss materials availability problems.

3. DoD Components should make maximum use of existing information and data exchange systems (e.g., Government-Industry Data Exchange Program (GIDEP)) to disseminate or request information on the availability of materials.

c. Designate a materials availability focal point and alternate to interface with OUSDR&E on requests for information and corrective actions. The focal point shall represent the Component on the DoD Materials Availability Steering Committee and shall have access to availability problems and information gleaned from operation of the programs listed in E2b above or from other sources.

d. Take action within the purview of the Component to resolve materials availability problems encountered prior to elevating the problems for action by USDR&E.

e. Bring to the attention of USDR&E materials or production facility availability problems which appear to have significant or far-reaching implications or effects. Problems forwarded to USDR&E shall be thoroughly documented and contain a record of actions taken by the DoD Component(s) to solve them.

F. PROCEDURES

1. If a need develops within an element of the DoD for information on the quantitative availability of materials, either from an individual plant or plants, or the total industrial capacity, a statement for such information should be submitted through appropriate channels to the USDR&E, who will:

e. Chair, on a quarterly basis, a quarterly meeting of a DoD Materials Availability Steering Group, composed of representatives from each of the DoD Components, to discuss and take action on materials availability problems.

f. Encourage the DoD Components to develop and disseminate among themselves information relating to mutual problems of availability of materials and production facilities.

2. Heads of DoD Components shall:

a. Develop and disseminate procedures implementing this Instruction.

b. Maintain surveillance over materials and production facilities availability problems discovered during the course of operations in the following programs:

(a) Priorities and Allocations Program (reference (b)).

(b) Industrial Preparadness Program (reference (c)).

(c) Diminishing Manufacturing Sources and Materials Shortages Program (reference (d)).

(d) Defense Contractor Energy Shortages and Conservation Program (reference (e)).

3. Seek to resolve, through whatever administrative or legislative means are appropriate and available, those materials or production facilities availability problems which are found to restrict peacetime, surge or mobilization production of critical or essential defense items.

E. RESPONSIBILITIES

1. The Under Secretary of Defense for Research and Engineering (USDR&E) shall:

a. Act as the central clearing house within the Department of Defense on problems of availability of materials and production facilities.

b. Establish and issue policy guidance to ensure that DoD Components surface, in a timely manner, materials and production facilities availability problems which have significant or far-reaching implications or effects, so as to allow early corrective action to be taken.

c. Act as DoD liaison with the Federal Emergency Management Agency (FEMA) for the solution of materials or production facilities availability problems on a nationwide scale.

d. Make necessary recommendations, take necessary action or assign responsibility to an appropriate DoD Component to overcome availability problems encountered.



DRAFT

NUMBER 4210.4

Department of Defense Instruction

SUBJECT: Studies on the Availability of Materials

- References:
- (a) DoD Instruction 4210.4, "Studies on the Availability of Materials," October 6, 1971 (hereby canceled)
 - (b) DoD Instruction 4400.1, "Priorities and Allocations -- Delegation of DO and DX Priorities and Allocations Authorities, Rescheduling of Deliveries and Continuance of Related Manuals," November 16, 1971
 - (c) DoD Instruction 4005.3, "Industrial Preparedness Production Planning Procedures," July 28, 1972
 - (d) DoD Directive 4005.16, "Diminishing Manufacturing Sources and Materials Shortages (DMSMS)," December 3, 1976
 - (e) through (f), see Enclosure 1

A. REISSUANCE AND PURPOSE

This Instruction reissues reference (a) and establishes policies and procedures within the Department of Defense for obtaining and disseminating information on the availability of materials needed for the production of military materiel during peacetime, surge or mobilization situations.

B. APPLICABILITY AND SCOPE

The provisions of this Instruction apply to the Office of the Secretary of Defense (OSD) and its field activities, the Military Departments and Defense Agencies (hereafter called "DoD Components").

C. DEFINITIONS

The word "materials" includes raw materials, articles, commodities, products, supplies, components, technical information, processes and energy.

D. POLICY

It is the policy of the Department of Defense to:

1. Continuously assess the capability of the U.S. industrial base to provide the types and quantities of materials and production facilities necessary to satisfy the peacetime, surge and mobilization production requirements for critical or essential defense items.

2. Coordinate and cooperate fully with all appropriate Government agencies and industry in the development and dissemination of information regarding the quantitative availability of materials or production facilities on a nationwide scale to support defense or essential civilian requirements.

DRAFT

Revision of DoDI 4210.4

(Studies on the Availability of Materials)

The Key TFIRE recommendation are:

- Tie-in with DoD programs which generate materials availability information/problems
 - o Priorities and Allocations (DoDI 4400.1)
 - o Industrial Preparedness Planning (DoDI 4005.3)
 - o Diminishing Manufacturing Sources and Materials Shortages (DoDD 4005.16)
 - o Defense Contractor Energy Shortages and Conservation (DoDI 4170.9)
 - o High Dollar Spare Parts Breakout Program (DoDI 4105.60)
- Broader definition of "materials" -- conforms to Defense Production Act definition and include energy
- Fixes responsibility of USDR&E, Military Services and Defense Agencies to develop and disseminate info on availability problems and take action to resolve or surface them
- Requires designation of Service and Agency materials availability focal points
- Suggests forums and info systems for collection or dissemination of info on problems

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DODI 4210.4
Studies on Availability
of Materials

INDUSTRIAL PREPAREDNESS PLANNING SCHEDULE

O N D J J F M A M J J A S O N D J J F M A M J J A S O

Requirements

Develop Basic Requirements-----X-----1 November

IPPL Preparation

Initial Preparation (DRAFT)-----X-----15 December
Interchange with DoD Components-----X-----15 February
Publish and submit to OUSDR&E-----X-----15 March

Production Data Preparation

Receive Other Service Reqmts-----X-----15 February
Forward Total Service Reqmts to ASPPO-----X-----15 March
Process Production Data-----X-----15 July
Forward Production Data to responsible Planning Activity-----X-----30 July
Feedback to other Services-----X-----15 August
DD Form 1519 Becomes Effective-----X-----1 October

P. B. A. Preparation

Prepare analysis, publish PBA and forward to OUSDR&E (AM)-----X-----15 December
Formally brief OUSDR&E (AM)-----X-----15 January

Budget and POM Cycle

Service/DLA input to their Budget/POM Cycle-----X-----15 January

Assumed M/S-D-----X-----1 October

DEFINITIONS

1. Critical Items List (CIL) A prioritized list of end items/weapon systems which are essential to war fighting. This list serves as the basis for development of the Industrial Preparedness Planning List, and is used as a guide for allocation of resources.
2. Data Item Description (DID) The contractual document that specifies the type of written material deliverable to the contracting activity, covering Industrial Preparedness Planning.
3. End Item A final combination of end products, component parts, and/or materials which is ready for its intended use.
4. Industrial Preparedness Planning List (IPPL) A list of end items/weapon systems, subsystems, or supporting equipment which are essential to war fighting. This list identifies the authorized items for which industrial preparedness planning will be conducted.
5. MDay The term used to designate the day on which mobilization is to begin. For purposes of planning, this day is the first day of each planning period, i.e., 1 October of the (fiscal) year following the year in which planning is accomplished.
6. Mobilization Planning Period - The period of consecutive months from M+1 through the month in which the leveloff requirement rate is reached or M+36 months. This planning period covers requirements beginning the next fiscal year beyond the calendar year in which the planning is prepared.
7. Planning Item Any item/critical component selected for industrial preparedness planning. Critical components of any IPPL end item, which are not separately planned or listed in the IPPL, are considered planning items when they meet all of the following criteria: (1) components are produced in the same plant as the end item which is listed in the IPPL, (2) a list of these components is included as a part of the approved planning data (DID, DD 1519, Sector Study, etc.), and (3) the components have been validated by the designated ASPPO and/or acquisition activity as critical for end-item production capability.
8. SDay A day designated by the appropriate DoD component that a surge situation exists and accelerated production is necessary to support exceptional or unusual military requirements short of war or in support of a friendly foreign government.
9. Surge The accelerated production/maintenance/repair of selected items to meet contingencies short of a declared national emergency. Only existing peacetime program priorities will be available to obtain materials, components, and other industrial resources necessary to support accelerated program requirements; however increased emphasis may be placed on use of these existing authorities and priorities.
10. Surge Planning Period Surge planning will cover an increase of industrial capability during a six month, a 12 month, or a 24 month time period depending on system to be surged.

REFERENCES

- (d) DoD Instruction 7720.19, "Data Relating to Cost of Maintenance of Industrial Mobilization Base", June 16, 1967 (hereby canceled)
- (e) DoD Directive 5000.34, "Defense Production Management," October 31, 1977
- (f) DoD Directive 4005.16, "Diminishing Manufacturing Sources and Material Shortages", December 3, 1976
- (g) Consolidated Guidance
- (h) DoD Instruction 5000.2, "Major System Acquisition Procedures"
- (i) DoD Instruction 4151.1, "Use of Contractor and Government Resources for Maintenance of Materiel," June 20, 1970

I. EFFECTIVE DATE AND IMPLEMENTATION

This Instruction is effective immediately. Two copies of implementing documents shall be forwarded to the DUSDR&E(AM) within 120 days.

Enclosures - 3

1. References
2. Definitions
3. Industrial Preparedness Planning Schedule

(6) Materials, Priorities, and Allocations

4. LIMITATIONS AND/OR RESTRICTIONS

a. Planning with industry will not be undertaken by the Department of Defense for production of basic materials (e.g., copper, steel, aluminum, etc.) in the mill forms and shapes normally produced for commercial use, machine tools, bulk fuel, food (except combat rations) or for components common to both military and civilian use which are readily available. Planning for these items is the responsibility of other Government agencies, such as the Federal Emergency Management Agency, Department of the Interior, Department of Agriculture, or Department of Commerce.

b. Industrial preparedness planning will be limited to U.S. and selected Canadian sources; however, foreign sources are to be identified in the PBA when they are defense suppliers.

c. It is reasonable to include surge provisions in a foreign supplier's contractual instrument, but the entire surge and/or mobilization requirement will be assigned to U.S. and Canadian sources in case the foreign source cannot or will not perform.

H. INFORMATION REQUIREMENT

Report Control Symbol DD-R&E(A)1201 is assigned to the reporting requirement of this Instruction.

(b) Equipment

(2) Industrial Preparedness Planning Operations

(a) Determination of Requirements

(b) Planning with Industry (COCO)

(c) Planning with GOGO & GOCO

(d) Maintenance of Production Data

(e) Management of government owned industrial plant equipment

(f) Production Base Support, Planning & Supervision

(g) Plant Inspections

(3) Layaway of Industrial Plants and Equipment, including PEPs

(Active and Inactive)

(4) Expansion/Modernization of government owned Industrial facilities

(a) Expansion of Industrial Facilities

(b) Modernization of Plants

(c) Modernization of Equipment

(d) Initial Production Facilities

(e) Production Support and Equipment Replacement

(5) Manufacturing Methods and Technology

(1) To preclude investment in duplicate facilities and to maintain surge/mobilization base producers, it is incumbent upon the developer of major weapons systems to coordinate the planned production effort with the DoD component that will have the production responsibility for the end item.

(2) When a program requires production of conventional ammunition, early coordination is required with the single manager of conventional ammunition to ensure that expertise and facilities already available in that segment of the industrial base are effectively and economically utilized.

b. Planned allocated capacity and production schedules,

c. Identification of industrial base deficiencies including skilled personnel and capability shortfalls, and

d. Identification of sole source situations for critical pacing components, and foreign source dependency.

e. Description of expenditures (current and projected) required to maintain an industrial base adequate to support planning items for surge and mobilization. Tabulations will address:

(1) Retention, Maintenance and Rebuild of Reserve Industrial Facilities

(a) Plants

G. EFFECTIVE DATE AND IMPLEMENTATION

This Instruction is effective immediately. Forward one copy of implementing documents to the Under Secretary of Defense for Research and Engineering within 120 days.

Enclosure - 1

References

REFERENCES

- (e) DoD Instruction 4170.9, "Defense Contractor Energy Shortages and Conservation," May 16, 1978
- (f) DoD Instruction 4105.60, "DoD High Dollar Spare Parts Breakout Program," November 16, 1964

Revision of DoD Instruction 4400.1

(DoD Priorities and Allocations Program)

Defense Science Board 1980 Summer Study and DoD Action Plan recommended more emphasis on and exercise of DoD priorities and allocations (P&A) authorities to provide short term solutions for specific materials shortages and long leadtime problems.

OUSD(R&E) initiated update of DoD Directive 4405.6, the starting point for P&A authorities within the DoD - update of DoD Instruction 4400.1 logically follows.

DoDI 4400.1 redelegates P&A authorities to the Military Services and Defense Agencies and authorizes two P&A manuals to provide procedural guidance.

Update necessitated by numerous regulatory changes made by Department of Commerce over the past 10 years.

The key TFIRE recommendations are:

- Administrative clean-up
 - o Delete canceled references
 - o Recognize organizational name changes
 - o Delete procedural information more suited for inclusion in manuals
- Addition of policy statement on P&A purpose and use
- Reaffirmation of need for controlled materials reporting system
- Addition of specific responsibilities of OUSD(R&E), the Military Service and Defense Agencies and the P&A Officers designated by the Services/Agencies

Update sets stage for significant effort of revising the two existing P&A manuals.

Completion of all P&A document updating will demonstrate DoD commitment to program and will ease Service/Agency problems in daily P&A operations



DRAFT

NUMBER 4400.1

Department of Defense Instruction

SUBJECT: DoD Priorities and Allocations Program

- References:**
- (a) DoD Instruction 4400.1, "Priorities and Allocations -- Delegation of DO and DX Priorities and Allocations Authorities, Rescheduling of Deliveries and Continuance of Related Manuals," November 16, 1971 (hereby canceled)
 - (b) DoD Directive 4405.6, "Delegation of Authority to Under Secretary of Defense (Research and Engineering)," April 13, 1968
 - (c) DoD 5025.1-M, "DoD Directives System Procedures," April 1981, authorized by DoD Directive 5025.1, "Department of Defense Directives System," October 16, 1980
 - (d) DoD Instruction 4410.3 "Policies and Procedures for the DoD Master Urgency List (MUL)," April 4, 1978

A. REISSUANCE AND PURPOSE

This Instruction:

1. Reissues reference (a) to establish and describe the DoD Priorities and Allocations Program, including the DoD Priorities and Allocations Council.
2. Redelegates priorities and allocations authorities contained in reference (b).
3. Authorizes the publication of DoD 4400.1-M, "Priorities and Allocations Manual," and DoD 4400.1-G, "Emergency Priorities and Allocations Guide," consistent with reference (c), to supplement this Instruction.

B. APPLICABILITY AND SCOPE

1. The provisions of this Instruction apply to the Office of the Secretary of Defense, the Military Departments, the Organization of the Joint Chiefs of Staff, the Unified and Specific Commands, and the Defense Agencies (hereafter called "DoD Components").
2. Its provisions also apply to those federal agencies operating under the DoD delegations of authority for programs approved for priorities and allocations support by the Federal Emergency Management Agency (FEMA) (hereafter called "associated agencies").
3. Its provisions encompass procurement in the United States and its territories and possessions, unless otherwise stated, and procurement by overseas commands requiring resources from the United States in support of DoD-authorized programs.

DRAFT

C. DEFINITIONS

The terms used in this Instruction are defined in enclosure 1.

D. POLICY

It is the policy of the Department of Defense to ensure the availability of industrial resources to meet current national defense requirements and to provide a framework to facilitate rapid industrial surge or mobilization in case of national emergency.

E. RESPONSIBILITIES

1. The Under Secretary of Defense for Research and Engineering (USDR&E) shall administer the DoD Priorities and Allocations Program. In discharging this responsibility, the USDR&E shall:

a. Redelegating to the DoD Components and associated agencies the priorities and allocations authorities necessary to promote the national defense.

b. Establish and issue policy guidance to ensure the legal, effective exercise of priorities and allocations authorities within the Department of Defense.

c. Conduct liaison on behalf of the Department of Defense with the Department of Commerce, FEMA, and other federal agencies, as appropriate, on priorities and allocations policy matters.

d. Issue the DoD Master Urgency List (see DoD Instruction 4410.3, reference (c)) as the basis for determining the precedence of DoD acquisition programs for the assignment of production resources.

e. Develop, publish, and maintain DoD 4400.1-M and DoD 4400.1-G (see subsection A.3., above).

f. Chair and DoD Priorities and Allocations Council.

2. The Heads of DoD Components and Associated Agencies shall comply with the provisions of the Instruction. In discharging this responsibility, they shall:

a. Exercise the authority to apply or assign to others the right to apply defense priority ratings and allotment symbols to contracts or orders to meet authorized DoD programs as defined in section B., enclosure 2, of this Instruction, reference (d), DoD 4400.1-M, and DoD 4400.1-G.

b. Exercise the authority to reschedule delivery of materials required to support approved claimant programs as defined in section C., enclosure 2, of this Instruction DoD 4400.1-M, and DoD 4400.1-G. The DoD Master Urgency List (reference (d)) will provide relative program urgency guidance when rescheduling delivery authority is to be exercised to support realistic needs to meet assigned program schedules.

c. Develop operating procedures and establish a written chain of priorities and allocations authority redelegation to the field level.

d. As a condition of delegation of priorities and allocations authority, nominate a Priorities and Allocations Officer and alternate. The Officer and alternate should possess specific and demonstrated knowledge of and experience with priorities and allocation regulatory and procedural matters. Heads of DoD Components and associated agencies shall forward the names, organizational affiliations, and titles of the nominees to the Staff Director for Materials Policy, Office of the Deputy Under Secretary of Defense for Research and Engineering (Acquisition Management) (ODUSDR&E(AM)), for approval and certification.

e. Forward to the USDR&E within 30 days, two copies of any changes in redelegations of rating, allotment, or rescheduling authorities.

f. Provide the Staff Director for Materials Policy, ODUSDR&E(AM), with a roster of trained Component/agency Priorities and Allocations personnel, including their names, organizational affiliation, office codes, and telephone numbers, annually.

3. The Priorities and Allocations Officers shall:

a. Monitor the assignment of defense priority ratings to DoD Component and associated agency procurement documents.

b. Calculate DoD Component and associated agency controlled materials requirements and report them to the Staff Director for Materials Policy, ODUSDR&E(AM) in accordance with DoD 4400.1-M and DoD 4400.1-G.

- c. Approve contractor requests for authorization to apply defense priority ratings to orders for production equipment.
- d. Work with the Staff Director for Materials Policy, ODUSDR&E(AM), on priorities and allocations policy and procedures.
- e. Respond to ODUSDR&E(AM) requests for information or comments concerning DoD priorities and allocations operations.
- f. Develop priorities and allocations training materials and conduct training sessions for DoD Component and associated agency personnel.
- g. Work with Department of Commerce personnel on DoD Component and associated agency Requests for Special Priorities Assistance.
- h. Prepare and forward to the Staff Director for Materials Policy, ODUSDR&E(AM), quarterly summaries of DoD Component and associated agency Special Priorities Assistance activities, in accordance with DoD 4400.1-M.
- i. Represent DoD Components and associated agencies on the DoD priorities and Allocations Council.

F. EFFECTIVE DATE AND IMPLEMENTATION

This Instruction is effective immediately. Forward two copies of implementing documents to the Under Secretary of Defense for Research and Engineering within 120 days.

Enclosures - 2

1. Definitions
2. Delegation of Authority

DEFINITIONS

1. Allotments. Authorizations by FEMA, the Department of Commerce, or the Office of the USDR&E (OUSDR&E) for the amount and kind of controlled materials that may be procured by or for DoD-authorized programs.
2. Approved Claimant Program. Authorized program identifications under which controlled materials requirements are submitted to FEMA and with which allocations, allotments, and ratings are identified.
3. Controlled Materials. Domestic and imported steel, copper, aluminum, and nickel alloys whether new, remelted, rerolled or redrawn. The term also may apply to other materials designated by the Department of Commerce.
4. DO and DX Ratings. Defense priority ratings. All DO-rated contracts and orders have equal preferential value and take precedence over all unrated contracts and orders. All DX-rated contracts and orders have equal preferential value and take precedence over all Do-rated and unrated contracts and orders.
5. Materials. Any raw, in-process, or manufactured commodity, equipment, accessory, part, assembly, or product.
6. Priorities and Allocations Officer. A DoD Component or associated agency representative knowledgeable of and experienced in priorities and allocations regulations and procedures.

7. Production Equipment. Equipment used in producing goods or services, including that for cutting, abrading, grinding, shaping, forming, joining, measuring, testing, heating, or treating of production materials or "in-process" products within a manufacturing, processing, assembling, or service establishment. The term also includes production-related computer equipment, capital equipment items, and related installation materials designated by the International Trade Administration (ITA), Department of Commerce.

DELEGATIONS OF AUTHORITY

A. GENERAL

The exercise of authorities delegated herein shall conform to OUSDR&E priorities and allocations policy, and to regulations, orders, delegations, quantitative allocations, and information requirements of the ITA. Conditions and responsibilities for use of the ratings, allotment, and rescheduling authorities are prescribed in DoD 4400.1-M and DoD 4400.1-G.

B. DO AND DX RATINGS AND ALLOTMENT AUTHORITY

The heads of DoD Components and associated agencies are delegated the authority to:

1. Assign to others the right to apply DO and DX ratings and allotment symbols to contracts or delivery orders to meet DoD programs authorized for priorities support by FEMA or designated by FEMA as eligible for priorities and allocations support through the Department of Defense.

2. Assign to prime contractors or subcontractors the right to apply DO or DX ratings to orders for delivery of privately owned production equipment specifically required to support authorized DoD programs or other specially designated programs.

3. Assign to contractors the right to apply DO and DX ratings to orders for delivery of construction equipment for use on construction in Alaska, Hawaii, or other areas outside of the continental United States.

4. Make allotments of controlled materials and assign to others the right to apply allotment symbols to rateable contracts and orders within the allotment jurisdiction of the Department of Defense.

C. RESCHEDULING OF DELIVERY AUTHORITY

Authority is delegated (with power to redelegate) to reschedule delivery of materials required to support approved claimant programs as follows:

1. To the Secretary of the Air Force for the Air Force portion of the Aircraft (A1) Program and the Missiles (A2) Program.

2. To the Secretary of the Army for the Tank-Automotive (A4) Program and for the Army portion of the Aircraft (A1) Program.

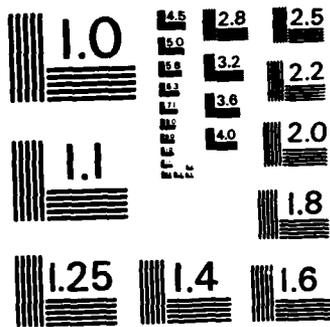
3. To the Secretary of the Navy for the Ships (A3) Program and for the Navy portion of the Aircraft (A1) Program.

D. OTHER

Delegations of rating and allotment authority to the associated agencies shall be made by letter to agency heads.

13 PROPOSED AMENDMENTS
to the Defense Production Act





MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A

Proposed amendments to the Defense Production Act of 1950

A broad range of DPA amendments are proposed by this package, which are intended to update the Act and to remove barriers to its effective use. The amendments are summarized below.

Declaration of Policy - The Declaration of Policy is amended to clarify the applicability of the DPA to the present-day environment. Rather than being an Act to mobilize the nation's resources for the Korean War, the amendments to the Declaration would clarify that the DPA is intended to be a vehicle for ongoing preparedness planning. Amendments of this nature were suggested earlier this year in Congressional testimony by the House Wednesday Group.

Title I - No amendments are prepared to this title.

Title II - No amendments are proposed to reactivate this expired title, though consideration may be given to providing standby (activated following a declaration of national emergency) requisitioning authority.

Title III - A range of amendments are proposed, or are under development, which would be intended to remove barriers to use of Title III to expand productive capacity and supply. Already-developed amendments would reduce the 60-days-of-continuous-session Congressional review period for large financial assistance proposals to 30 days, permit expedited approval of such proposals as an option, subject large purchase agreements to similar review procedures, and require a report on all proposed financial assistance, detailing costs, benefits, and anticipated improvements in industrial preparedness. The proposal to increase requirements for justifying projects and to increase Congressional authority over purchase commitments is made to assure Congress that Title III funds will not be obligated frivolously.

Another amendment, presently under OSD review would activate a funding mechanism, similar to the old DPA borrowing authority, to avoid the need for annual appropriations (this section is not included in this package).

Title IV - A new Title IV has been developed, partially in response to stated Congressional interest, to address the problem of skilled labor shortages. This new title would require the President to survey national, local or sectoral defense labor requirements, to report regularly to Congress on his findings, and to identify and implement programs to rectify any problems he identifies. The title also requires the President to consult regularly with labor on industrial preparedness plans and programs.

Title VII - Amendments are proposed to Section 708 which

would remove unnecessary restrictions on the convening of voluntary agreements with industry. Five-year extension of the DPA is provided (although there is considerable doubt whether Congress will approve longterm extension of the DPA, both the House and the Senate Banking Committees have expressed willingness to consider longterm extension under certain conditions. It is hoped that an extension of at least three years will be approved).

To be prepared as a part of the Title III funding initiative is an amendment to Section 711 providing a specific authorization for Title III actions.

Also under development is a statement for delivery at Congressional hearings on the DPA amendments/extension. This statement will describe the importance of the DPA to industrial preparedness initiatives, and will address the need for vigorous implementation of existing authorities, such as Title I, Title III and the Executive Reserve (also highlighted as a problem area by the Wednesday Group witnesses). By establishing such a broad thematic context for consideration of the DPA as it affects the defense industrial base, it is hoped that a better case will be made for longterm extension of stable authorities and for acceptance of the other amendments.

DEFENSE PRODUCTION ACT AMENDMENTS

(Deleted material ~~crossed-out~~
New material underlined)

I. Amend the Declaration of Policy to read as follows:

In view of the present international situation, the nation's demonstrated reliance on imports of raw materials and components, and the need for measures to reduce defense production lead times and bottlenecks, and in order to provide for the national defense and national security, our defense mobilization preparedness effort continues to require ~~some diversion of certain materials and facilities from civilian use to military and related purposes. It also requires~~ the development of preparedness programs, defense industrial base improvement measures and the expansion of productive capacity and supply beyond the levels needed to meet civilian demand, in order to improve defense industrial base efficiency and responsiveness, to reduce the time required for ~~full~~ industrial mobilization in the event of an attack on the United States or to respond to actions occurring outside of the United States which could result in the termination or reduction of the availability of strategic and critical materials, including energy, and which could adversely affect the national defense preparedness of the United States. In order to insure the national defense preparedness which is essential to national security, it is also necessary and appropriate to assure the availability of domestic energy supplies for national defense needs.

In order to insure productive capacity in the event of such an attack on the United States, it is the policy of the Congress to encourage the geographical dispersal of the industrial facilities of the United States in the interest of the national defense, and to discourage the concentration of such productive facilities within limited geographical areas which are vulnerable to attack by an enemy of the United States. In the construction of any government-owned industrial ~~facilities~~ facility, in the rendition of any Government financial assistance

for the construction, expansion, or improvement of any industrial facilities, facility, and in the production of goods and services, under this or any other Act, each department and agency of the Executive Branch shall apply, under the coordination of the Office of Defense Mobilization, when practicable and consistent with existing law and the desirability for maintaining a sound economy, the principle of geographical dispersal of such facilities in the interest of national defense. However, nothing in this paragraph shall preclude the use of existing industrial facilities.

To ensure the adequacy of productive capacity and supply, Executive Branch agencies and departments responsible for defense acquisition and preparedness shall continuously assess the capability of the defense industrial base to satisfy peacetime requirements as well as increased production requirements. Such assessments shall specifically include the availability of adequate production sources (including subcontractors and vendors), raw materials and skilled labor.

It is the policy of the Congress that plans and programs to carry out this Declaration of Policy be undertaken with due consideration for promoting efficiency and competition.

II. Amendments to Sections 301 and 302, Defense Production Act of 1950

1. Subsection 301(e)(1)(B) is amended:

- (a) by deleting "and 60" and inserting in lieu thereof "and (i) 30"
- (b) by deleting "within such 60-" and inserting in lieu thereof "within such 30-"
- (c) by deleting "of such 60-day period." and inserting in lieu thereof "of such 30-day period, or (ii) if each House of Congress approves a resolution affirmatively stating in substance that such House does not object to such obligation."

2. Subsection 302 is amended

- (a) by deleting "and 60" and inserting in lieu thereof "and (a) 30"
- (b) by deleting "within such 60-" and inserting in lieu thereof "within such 30-"
- (c) by deleting "of such 60-day period." and inserting in lieu thereof "of such 30-day period, or (b) unless each House of Congress approves a resolution affirmatively stating in substance that such House does not object to such obligation."

(Deleted material ~~crossed-out~~
New material underlined)

III Amend Section 303(a), before the first proviso, to read as follows:

~~To assist in carrying out the objectives of this Act,~~
When it will promote improved defense preparedness, the
President may make provision promote expanded domestic
productive capacity and supply by making contracts or agreements
(1) for purchases of or commitments to purchase metals,
minerals, and other materials, for Government use or resale;
and (2) for the encouragement of exploration, development
and mining of critical and strategic minerals, metals
and materials. No such contracts or agreements may be made
in an amount greater than \$50 million unless the Committees
on Armed Services of the Senate and the House of Representatives
have been notified in writing of such agreement and (i) 30
days of continuous session of Congress have expired following
the date on which such notice was transmitted to such Com-
mittees and neither House of Congress has adopted, within
such 30-day period, a resolution disapproving such agreement.
For purposes of this section, the continuity of a session of
of Congress is broken only by an adjournment of the Congress
sine die, and the days on which either House is not in session
because of an adjournment of more than 3 days to a date certain
are excluded in the computation of such 30-day period; or (ii)
each House of Congress approves a resolution affirmatively
stating in substance that such House does not object to the making
of such contract or agreement.

IV At the conclusion of Section 303, insert the following:

"(h) In considering proposals for financial assistance pursuant to this Title, the President shall make every effort to minimize the federal financial commitment and the financial risk to the federal government. Every contract for financial assistance pursuant to this Title shall expressly provide that the federal government shall have the right to buy out the project at its undepreciated value.

"(i) The President shall submit to the Congress a detailed report on each proposed award of financial assistance pursuant to this Title. If notification of Congress is required, pursuant to Subsection 301(a)(1)(B), Subsection 302, or Subsection 303(a), the report described above shall accompany such notification. Such report shall fully describe:

(1) the anticipated contribution of the project to industrial preparedness (including an analysis of the impact, if any, on critical material import dependence or on National Defense Stockpile goals), and its impact on productive capacity and supply;

(2) types and amounts of financial assistance to be provided or committed to the project;

(3) alternate methods of financing considered (including private financing), and the reasons that such methods are considered unlikely to result in successful project completion;

(4) existing domestic capabilities to produce the material or item to be produced by the project receiving financial assistance, and the need for supplementing existing sources;*and*

(5) the probable ultimate net cost to the federal government of such financial assistance, and the methods of computing such cost.

V

Add a new Title IV as follows:

"TITLE IV. NATIONAL DEFENSE LABOR SHORTAGES AND POLICY

"Section 401. The President shall continuously assess the employment patterns incident to, and labor requirements for, national defense production. In particular, he shall assess --

(a) the probable requirements for, and availability of, skilled labor for national defense production and preparedness;

(b) the impact of defense spending, including both increases and cutbacks, on local, regional and national employment patterns;

(c) methods of ameliorating (through contract source selection and distribution, training, or otherwise) local or national defense labor shortages; and

(d) critical skills and industries experiencing, or likely to experience, labor shortages.

Section 402. The President shall prepare a report for Congress not later than January 15 of each year, summarizing the results of his assessments under Section 401, with any recommendations to improve problems identified by these assessments.

Section 403. (a) When the President determines that a shortage of labor is interfering with, or is likely to interfere with, national defense industrial preparedness or production efforts, he shall identify and implement programs to correct these deficiencies.

DRAFT

Section 404. In developing plans for national defense and industrial preparedness, including consultations with industry under the authority of Section 708 of this Act, the President shall consult on a regular basis with representatives of labor. The views of labor shall be solicited regularly, on all issues relating to industrial preparedness, including, but not limited to --

- (a) labor-management relations impacting on defense preparedness and mobilization; and
- (b) skilled labor requirements and training programs.

DRAFT

VI Amend Section 708(c)(1)

by deleting "upon finding that conditions exist which may pose a direct threat to the national defense or its preparedness programs," and inserting in lieu thereof "When he concludes that it is necessary for purposes of national defense preparedness programs,"

Amend Section 717:

by deleting "September 30, 1982" and inserting in lieu thereof "September 30, 1987".

Revision of DoDI 4200.15

(Manufacturing Technology)

This document, which had not been updated since 1972, was completely re-written to incorporate policy changes made since 1972 and selected recommendations from Payoff '80, AF Ad Hoc Advisory Board, House Appropriations Committee Report, and the GAO reports on Manufacturing Technology.

The key TFIRE recommendations are:

- Manufacturing Technology, Manufacturing Technology Project and Manufacturing Technology Program definitions streamlined
- Objectives of M/T Program highlighted under separate heading. Objectives are those agreed to by the Services in the DoD M/T Statement of Principles
- Advocates an adequately staffed centralized M/T program management structure by the Services for planning and control
- Defines funding sources/categories (i.e., procurement, RDT&E, O&M)
- Advocates centralized M/T program information system and related tri-service data base for determining program effectiveness. Performance measures of fiscal planning, technical execution, implementation and benefits tracking, and technology transfer and diffusion will be accessible from the information system.
- Cites example investments not appropriate for funding by the M/T program
- Requires closer coordination with MTAG by the Services on M/T project funding requests
- Added requirement for budget and apportionment information to be provided in accordance with DoD Budget Manual 7110-1-M.

The above changes to DoDI 4200.15 constitute more than line-out changes. It is a major re-write of the document, in accordance with previously-cited recommendations, and was coordinated with the Services through the MTAG Executive Committee.

CHAPTER ONE

INTRODUCTION

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BACKGROUND

The title of this guide is "Improving Productivity". As such it will concentrate on the steps that can currently be taken by the Department of Defense (DoD) to increase the amount of cost reduction investments made by defense contractors. There are a number of alternative methods for encouraging cost reduction investments. This guide will discuss many of these concepts in a more amount of detail in support of the concept that knowledge and sound business practices are more useful than mechanical checklists in solving complex problems. Knowledge is critical because no broad prescription can be given to solve all acquisition situations involving cost reduction investments. A unique cost reduction program must be designed for each acquisition situation. Where good business practices demonstrate that the benefits are worth the effort.

In a more general sense this guide deals with increasing productivity in defense acquisitions. Falling productivity affects the entire United States (US) economy, and the Defense Industrial Base (DIB) is no exception. Declining productivity is particularly disturbing to the DoD. The cost of new weapon systems has been increasing at an exponential rate since the end of World War (WWII). Declining productivity is not the only cause of increasing cost trends. Productivity is, however, a critical element in this trend and one which can be attacked by the defense industrial community.

Productivity is often said to be primarily influenced by technology and capital. That is, productivity varies in almost direct proportion to the application of technology and capital. Various national studies have shown that capital and technology can account for approximately 70% of the rate of productivity growth. Beyond this relationship, those nations with the highest ratios of Investment To Gross National Product (GNP) had the highest rate of productivity increase.

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FOREWARD

This Department of Defense (DoD) Guide for Improving Productivity has been developed to describe improved productivity enhancing techniques for defense contracting. It contains instructional material that is based on policies expressed in DoD Directives, including the Defense Acquisition Regulation (DAR), and it provides detailed discussion and examples to illustrate the application of productivity enhancing techniques in DoD contracting. However, none of the material contained herein is directive in nature. In the event of conflict with other DoD Directives adherence to DoD Directives should take precedence.

The information provided in this DoD Guide is primarily designed for use on DoD programs which are listed in the Five Year Defense Program (FYDP) and designated as Defense System Acquisition Review Council (DSARC) programs, in accordance with DoD Directive 5000.1, "Acquisition of Major Defense Systems". However, some of the techniques identified in this guide may be applied in non-major acquisition programs. Many of the techniques described also have application to subcontractors and may be down from prime to subcontractors where appropriate.

The techniques described in this DoD Guide need to be tailored to suit particular contract situation. Care must be taken to insure that the contracting incentives selected can be appropriately administered. Certain incentives described in this guide have been designed primarily for DoD contractors which have only a small number of large government contracts.

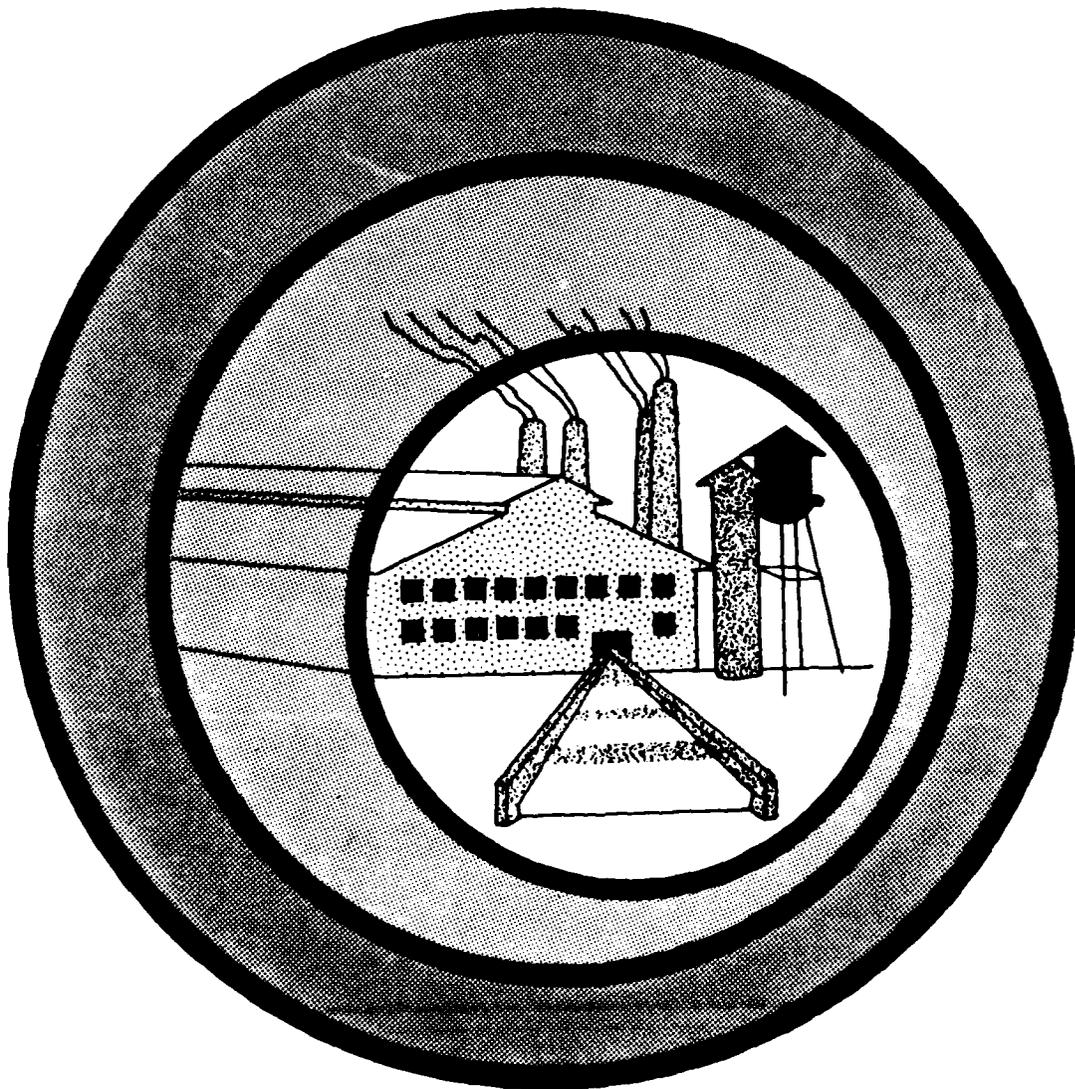
This Guide should not be viewed as a panacea for resolving DoD contractor productivity problems. The objective of this Guide is to facilitate reaching a sound business arrangement whereby both the DoD and DoD Contractors can benefit through capital investments to improve productivity. Reaching such an agreement requires some degree of personal judgement and the negotiation should, when possible, result in simultaneous rather than not sequential agreement on all terms of conditions relating to the contractual business arrangement.



DOD GUIDE

DRAFT

IMPROVING PRODUCTIVITY IN DEFENSE CONTRACTING



Department of Defense (The 1982 Edition)

DRAFT

DoD Guide - "Improving Productivity"

This guide was developed in response to recommendations in House Armed Services Committee Report and Defense Science Board Summer 1980 study to provide incentives to defense contractors to improve productivity by investment in technology, capital facilities, and equipment. This guide is also responsive to DoD Acquisition Improvement Initiative 5b entitled: encouraging capital investment to enhance productivity.

The intent of the guide is to provide under one cover incentives available to the Department of Defense to enhance contractor productivity and reduce costs. This "how to" guide provides a methodology for establishing capital investment incentives as well as a number of examples of clauses which may be elaborated on to suit the particular situation involved.

This document is proposed as a DoD Guide which, while non-mandatory, is expected to fill a "void" where very little guidance currently exists.

A copy of this guide has been provided to OUSDRE(AM)CPF for their use in implementing DoD Acquisition Improvement Recommendation #5b.

REFERENCES, continued

- (e) DoD Directive 5000.1, "Acquisition of Major Defense Systems,"
March 19, 1980
- (f) DoD Directive 6050.1, "Environmental Effects in the United States of
DoD Actions," July 30, 1979
- (g) DoD Directive 4275.5, "Acquisition and Management of Industrial Resources,"
October 6, 1980
- (h) DoD Instruction 7720.13, "Research and Technology Work Unit Information
System," April 16, 1968 (changes 1 and 2)

b. Information on all planned, active, and completed Manufacturing Technology Program investments will be submitted and maintained up to date in the DoD Manufacturing Technology Program tri-service data base.

G. EFFECTIVE DATE AND IMPLEMENTATION

This Instruction is effective immediately. Two copies of implementing documents will be forwarded to the Under Secretary of Defense for Research and Engineering within 120 days.

f. Handbooks

g. Implementation of resulting technologies

9. The Office of the Secretary of Defense and the Military Departments will continue the Manufacturing Technology Advisory Group (MTAG) established by tri-service agreement of 7 December 1977. MTAG shall be utilized:

a. Prior to submission of investment funding requests to OSD, each Military Department will ensure that all investment proposals have received a detailed technical review by the appropriate MTAG technical subcommittee(s). The results of such technical reviews will be documented and included as part of each manufacturing technology investment proposal/ records; and

b. Prior to obligating funds under reprogramming delegation of authority, the Military Departments will also ensure that tri-service technical reviews are conducted with the results documented and included as part of each manufacturing technology investment's record.

F. INFORMATION REQUIREMENTS

The Military Departments will provide information necessary to effectively manage the Manufacturing Technology Program:

a. Budget and apportionment (detailed and summary) information will be provided in accordance with the "DoD Budget Manual, DoD 71101-M" (reference (e)); and

- a. Fiscal planning;
- b. Technical execution;
- c. Implementation and benefits tracking; and
- d. Technology transfer and diffusion.

These measures must be satisfied for all investments regardless of the category of funds utilized.

8. Manufacturing Technology Program funds will not be used for investments more appropriately funded by other means. Examples of investments excluded are:

- a. Routine application of existing technology for the production of specific parts;
- b. Investments specifically intended to change an item design;
- c. Support of a single end item which is itself identified to a unique specific program element;
- d. Purchasing of more than incidental off-the-shelf capital equipment;
- e. Conducting type classification tests of improved products/components resulting from the application of the results of Manufacturing Technology Program investments; and

c. O&M funds will be used when technological feasibility or proof-of-concept has been successfully demonstrated but not yet reduced to economically sound maintenance and repair applications.

5. Manufacturing Technology program investments shall be selected by assessing both (a) production, maintenance, and repair life-cycle-costs and responsiveness impacts and (b) the potential to reduce those costs/impacts by advancing manufacturing technology. Maximum benefits from every Manufacturing Technology Program investment will be sought by ensuring that:

a. There is a well-defined DoD requirement for the technology, it can be delivered in time to meet that requirement and there is a well defined plan to implement the results; and

b. Anticipated project results are applicable to more than one end item.

6. A centralized Manufacturing Technology Program information system will be established to provide effective tri-service program management and technology transfer/diffusion. It will consist of a centralized computer data base containing information on all planned, active, and completed Manufacturing Technology Program investments.

7. Manufacturing Technology Program effectiveness must be routinely and continuously evaluated by providing simple and unequivocal performance measures of:

c. Multi-service sponsored investments are encouraged;

d. Individual investment planning must be well thought out, given wide spread visibility, and provide a mechanism for senior management personell to impact the project content and program strategy and priorities; and

e. Weapons systems program managers are encouraged to include new manufacturing technology requirements in their acquisition strategies.

3. The Manufacturing Technology Program will adhere to DoD's basic policy of relying on private sector investment wherever possible. Manufacturing Technology Program investments will be undertaken with DoD funds only when qualified segments of industry cannot or will not commit private capital to establish manufacturing technology and make it available on a timely basis for public use in support of DoD requirements.

4. All manufacturing technology investments will be conducted under the purview of this Instruction. The following criteria will be used to select the appropriate funding category for Manufacturing Technology Program investments:

a. Procurement funds will be used when technological feasibility or proof-of-concept has been successfully demonstrated but not yet reduced to economically sound production applications;

b. RDTSE funds will be used when technological feasibility or proof-of-concept has not been demonstrated but the anticipated results are expected to lead to needed, economically sound production applications; and

3. Continuously advance manufacturing technology to bridge the gap from R&D advances to full-scale production;

4. Ensure that more effective industrial innovation and capital investment in new plant and equipment are stimulated by reducing the cost and risk of advancing and applying new and improved manufacturing technology; and

5. Ensure that manufacturing technologies used to produce DoD materiel are consistent with safety and environmental considerations and energy conservation objectives.

E. POLICY AND CRITERIA

1. Each Military Department will maintain a continuing identifiable Manufacturing Technology Program in support of references (b), (c), and (d).

2. Each Military Department will provide an adequately staffed central Manufacturing Technology program management structure to promote the requisite centralized fiscal planning, technical management and control necessary for direction and orientation of investments to the areas of greatest need and payoff:

a. Program planning will constitute a fully integrated tri-service activity;

b. Unnecessary intra/inter Service or private sector duplication of investment will be avoided;



DRAFT

NUMBER 4200.15

Department of Defense Instruction

SUBJECT: Manufacturing Technology Program

- REFERENCE: (a) DoD Instruction 4200.15, "Manufacturing Technology Program," July 14, 1972 (hereby cancelled)
(b) DoD Directive 4005.1, "DoD Industrial Preparedness Production Planning," July 28, 1972
(c) DoD Directive 5000.34, "Defense Production Management," October 31, 1977
(d) DoD Directive 5000.1, "Acquisition of Major Defense Systems," March 19, 1980
(e) DoD Budget Manual, DoD 7110-1-M, July 7, 1978

A.. REISSUANCE AND PURPOSE

This Instruction reissues reference (a) to update Manufacturing Technology Program policies.

B. APPLICABILITY AND SCOPE

The provisions of this Instruction apply to the Office of the Secretary of Defense, the Military Departments, and to those Defense Agencies having responsibilities for Manufacturing Technology Program investments.

C. DEFINITIONS

1. Manufacturing Technology refers to information which is, will or may be used to define, monitor, control, or ensure quality of processes and associated equipment used to produce DoD materiel.

2. Manufacturing Technology Project refers to an individually managed DoD investment specifically intended to establish or validate new or improved manufacturing technology.

3. Manufacturing Technology Program refers to the sum total of all DoD investments specifically authorized for establishing new or improved manufacturing technology.

D. OBJECTIVES

The objective of the Manufacturing Technology Program is to significantly improve the productivity and responsiveness of the defense industrial base by engaging in initiatives which:

1. Aid in the economical/timely production of qualitatively superior weapons systems/components;

2. Ensure that advanced manufacturing processes, techniques and equipment are available and will be used to reduce DoD materiel acquisition costs;

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COST-REDUCTION INVESTMENT

Cost reduction investments relate to the previously discussed issue of increasing productivity. Increasing productivity by cost reduction investment entails reducing the amount of labor and material required to produce a given level of output. Increased productivity results in reduced costs thus allowing the Defense Department to better utilize its financial resources.

The relationship between technology and capital is critical to understanding cost reduction investments. Money spent on establishing new technology can result in productivity gains when this new technology is implemented into the production process. The implementation of technology is a critical step and one which requires capital. Capital provides the driving force to implement the ideas generated through new technology application. Capital may be used for the acquisition of new plant equipment, for designing new software for control systems, for providing necessary working capital to implement a concept, or for numerous other applications which require capital to facilitate productivity gains which result from the potential of technology application.

TECHNOLOGY + CAPITAL = INCREASED PRODUCTIVITY

A typical cost reduction investment might entail the replacement of old, inefficient capital equipment with new, more efficient capital equipment. The new equipment might be state-of-the-art computer controlled equipment or it might entail equipment which pushes the state-of-the-art, such as flexible robotics. It could also involve investment in more efficient tooling or in redesigned computer software for a production control system. The point is that cost reduction investments can and should involve many different applications of capital which result in reducing the input quantities of labor and material thereby providing increased productivity and reduced costs.

UP-FRONT INVESTMENT

One explanation of declining US productivity centers on private industry's management emphasis on short term profits and maximizing return on invested capital. Return on assets has often been used as a yardstick in measuring corporate progress and executive performance. This management philosophy results in a reluctance to invest large sums of capital. Productivity and profits may not instantly improve and this creates the risk of portraying a declining return on invested capital in the short term (current financial balance sheet). This phenomenon can lead to extremely conservative capital asset management. (See Table I)

	<u>BEFORE INVESTMENT</u>	<u>IMMEDIATELY AFTER INVESTMENT</u>	<u>AFTER REALIZING SAVINGS</u>
COST/UNIT	\$100	\$100	\$90
PROFIT/UNIT	10(10%)	10(10%)	20(22%)
PRICE/UNIT	110	110	110
CAPITAL/UNIT	30	38	38
RETURN ON CAPITAL	33%	26%	53%

Table I. Return on Assets Example

Figure 1 graphically demonstrates the main problem in justifying cost reduction investments involving large outlays of capital. The problem is profits (cost savings/avoidances) do not increase in the short run while costs (capital invested) increase significantly because capital must be invested in advance or "up-front" of the expected benefits. Thus, long term productivity gains are often lost due to emphasis on the short term impact of return on invested capital.

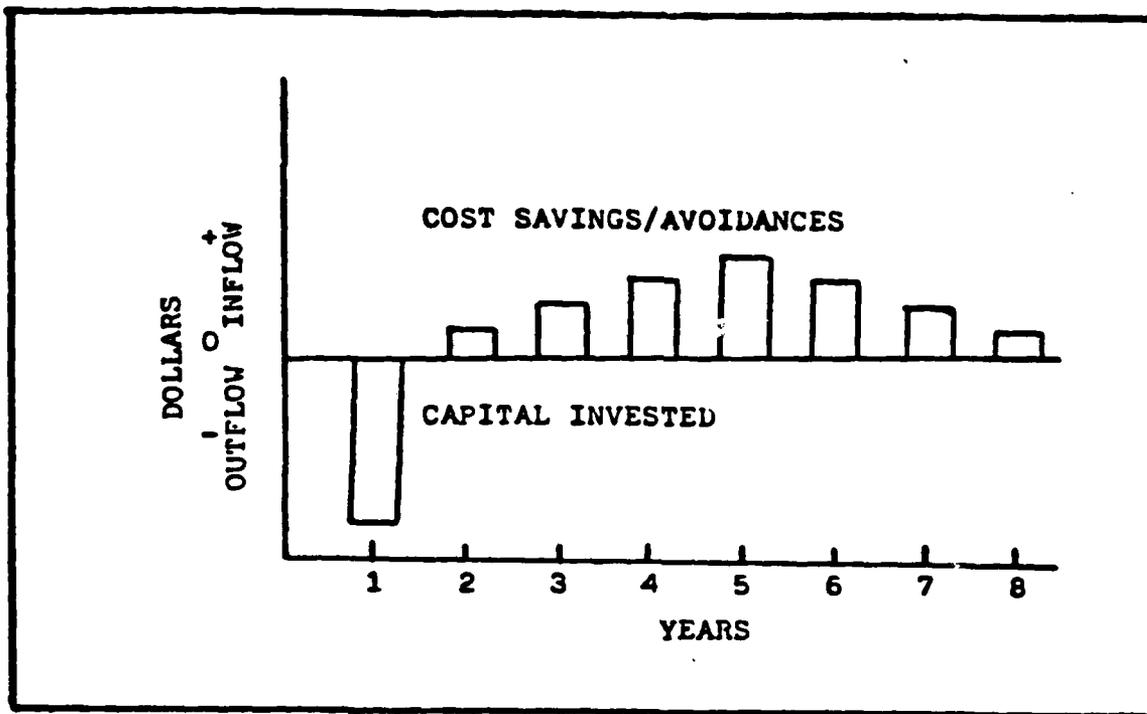


Figure 1. Cost Reduction Example

UNCERTAINTY

Contractors who deal primarily with the Defense Department face many other roadblocks to developing a sound capital investment program. Chief among these problems is the large degree of uncertainty associated with most defense sales. This uncertainty applies to current contracts as well as potential future contracts. The use of annual fiscal year buys is a major contributor to uncertainty. A program buy is often artificially divided to allow for annual funding requirements. Thus, a series of annual contracts are required to purchase multiple year requirements. The problem arises because contractors cannot realistically make efficient production plans based upon the larger (but not authorized) multiyear quantity. Annual quantities are generally not sufficient to make cost reduction investments profitable for the contractor. Most of the benefits, in terms of reduced costs, would accrue to the customer on subsequent negotiated contracts, because current contract cost performance is normally used to negotiate a fair and reasonable cost base for follow-on contracts.

Significant uncertainty concerning potential new business can exist because most defense contractors cannot control, to any significant degree, the level of future sales. Future sales are dependent upon DoD requirements and the ability of the contractor to win future competitions. These competitions are often extremely severe and can result in the practice of "buying in". Because of this situation, future sales are often difficult to project by defense contractors. This makes long range planning difficult.

High risk and uncertain profits, have led to many disturbing trends in defense contracting. Bankers have viewed defense contracting as less attractive than many other lines of business. Defense contractors have been conservative when it comes to making large capital investments. Lack of control over the level of future sales has led to extreme caution in acquiring additional fixed assets. The use of all types of government furnished facilities is often more desirable than buying new assets. Return on assets (profits/assets) can be maximized in the short run primarily by holding constant or decreasing the level of assets employed. Unfortunately, many defense contractors have opted for just such an asset strategy which maximizes return on assets in the short run.

IMPROVING DEFENSE PRODUCTIVITY

Fortunately the adverse trend in defense productivity can be turned around. Contracting incentives exist today which can be tailored to a particular acquisition situation. These incentives are discussed in detail in Chapter 3 of this guide and include procedures to share equitably the cost savings/avoidances generated from cost reduction investments. They also include a procedure designed to remove some of the risk involved in cost reduction investments. The use of award fees and government funded technology is also covered. Contracting officers currently have enough tools available to contract for a viable cost reduction program. A point to keep in mind while reading this guide is that no magic formula exists which can be used for all acquisition situations. Every acquisition is different and the tools described in this guide must be carefully tailored to the situation. No one single contract strategy can be devised which can be applied across the broad spectrum of defense contracting.

CHAPTER TWO
RETURN ON INVESTMENT

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BACKGROUND

Return on investment (ROI) is the central concept that the contracting officer must understand if he is to contract successfully for cost reduction investments. Achieving an optimum ROI is the driving force behind successful cost reduction programs. A contractor may invest capital to win a competition, to expand to meet rising sales or any number of other "necessary" reasons. These types of investments are not driven by ROI, they are driven by necessity. Cost reduction investments are not normally driven by necessity; they are driven by the desire to earn a satisfactory return on invested capital. The product can be produced and marketed without the introduction of modern technology and equipment. Cost reduction investments must meet the challenge of competing investments.

If the DoD is going to incentivize a defense contractor to invest in modern cost reduction technology/equipment there must also be a reasonable return to the Government for its "invested" resources. The important point to remember is that a cost reduction program must benefit both the Government and the contractor. It is a cooperative venture in which both parties share the risk for the potential success or failure of the program. The concept of shared risk and mutual benefit is key to understanding the incentive provisions outlined in Chapter 3. Neither party can afford to view the other as an adversary. Cooperation is required for success.

DEFINITION OF ROI

There are many different definitions of ROI. ROI can be calculated for an individual capital investment or it can be calculated for the entire operation of the company. This guide will concentrate on methods to evaluate ROI at the micro, or individual investment level. This is the level which must be addressed when developing a cost reduction program and negotiating the appropriate incentives. Before moving on to a definition of ROI at the micro level, a brief discussion of ROI at the macro or company level is presented. This discussion is helpful in the overall understanding of the concept of ROI.

Macro Level

ROI at the macro level involves profit on sales and the amount of assets employed in generating these profits. Profit percentages viewed in isolation can be misleading. A grocery store, for example, may only earn a one percent profit on sales while an aircraft manufacturer earns a ten percent profit on its sales. Given the same level of sales it appears that the aircraft factory is earning a better return. Here is where the concept of return on assets becomes important. A grocery store may require much fewer assets to operate than does an aircraft factory. In other words, the grocery store may earn a very high return on its assets while an aircraft company earns a comparatively low return on its assets. The following formula describes how ROI at the macro level is computed.

MACRO ROI FORMULA

$$\frac{\text{Profit}}{\text{Sales}} \times \frac{\text{Sales}}{\text{Assets}} = \text{Percent return (ROI)}$$

The simplified formula becomes:

$$\frac{\text{Profit}}{\text{Asset}} = \text{ROI}$$

SAMPLE CALCULATION

GROCERY STORE	:	$\frac{1 \text{ (Profit)}}{100 \text{ (Sales)}}$	X	$\frac{100 \text{ (Sales)}}{10 \text{ (Assets)}}$	= 10% ROI
AIRCRAFT COMPANY	:	$\frac{10 \text{ (Profit)}}{100 \text{ (Sales)}}$	X	$\frac{100 \text{ (Sales)}}{100 \text{ (Assets)}}$	= 10% ROI

This example is hypothetical and is presented to demonstrate the importance of the level of asset (investments) in computing ROI. At the macro level, and at the micro level, ROI is a calculation that is used to bring financial comparisons down to a common denominator.

Micro Level

The computation of the ROI for an individual capital investment involves the analysis of the investment itself and the stream of cash flows generated by the investment. A simple analogy is that of depositing money in a bank savings account and receiving periodic interest payment in return for the bank's use of deposited funds. The deposit can be compared to the investment (capital equipment), while the interest payments can be compared to the cash flows generated by the investment. If the bank pays a rate of interest of ten percent, the ROI could be considered to be equal to the rate of interest.

DISCOUNTING

Discounting is a term often used to describe finding the present value of a sum of money. Discounting is simply the reverse of compounding. The following equation describes the process of discounting.

$$P = V \frac{1}{(1+i)^n}$$

P = principal or beginning amount (PV)

i = interest rate

V = ending amount (principal + interest)

n = the ending of a period such as year 1,2, etc.

If \$1,000 is invested at 10% interest for one year, the value of (V) would be \$1,100. The present value of \$1,100 is found as follows:

$$P = \$1,100 \frac{1}{(1 + .10)^1} = \$1,100 (.909) = \$1,000$$

Tables which give the present value of one dollar for various years (n) and for various interest rates (i) have been calculated and can be found in most basic business finance texts. A representative present value table can be found in Appendix A.

DISCOUNTED CASH FLOW MODEL

The discounted cash flow (DCF) method of computing the ROI resulting from an individual capital investment is generally accepted as the appropriate model for such an analysis. Other methods do exist to compare investments, but they are not as widely accepted as the DCF method and are not as useful in determining the amount and timing of incentive payments (shared savings) which may be required when contracting for cost reduction investments. The DCF model uses the internal rate of return (IRR) methodology, which is defined as the interest rate that equates the present value of the expected future returns to the value of the investment. The ROI obtained from the DCF model is then compared to some standard of opportunity cost, generally the firm's cost of capital, to determine if scarce resources will be committed to the subject investment.

Sometimes the cost reduction benefits flow in greater percentages to the Government than to the contractor. In these cases it may be of benefit for contracting agencies to consider allocating a greater share of the cost savings/avoidances to the contractor. The additional cash flow may cause the investment to be attractive to the contractor. The Government benefits by reducing the acquisition price while the contractor benefits by the potential of earning additional profit which could encourage decisions to invest.

The best way to demonstrate how a DCF model operates is to describe an example. While the inputs to the ROI calculations may vary from firm to firm, the basic format will remain viable. Table II presents a completed sample DCF model. The following is a brief discussion of the elements contained in the model.

- (1) INVESTMENT - Time phased forecast expenditures for the capital equipment to be acquired.
- (2) SHARED SAVINGS - This represents the share of savings required to provide the contractor with a rate of return sufficient to make the investment. This rate may vary from case to case depending on economic conditions, business and financial risk, project size and capital cost, payback period, and the relative importance of spending for different strategic and tactical purposes. By fixing the discount factor values in row 15 at a predetermined rate of return, the shared savings required to achieve that return can be derived (by trial and error) by the model so that the sum of the discounted cash flows in row 16 will equal the value of the original investment.
- (3) IMPUTED INTEREST (CAS 414) - Cost Accounting Standard (CAS) 414 allows a factor for facilities cost of money to be added to the cost base of government contracts. The interest rate used for CAS 414 calculations is a published interest rate (published periodically by the Secretary of the Treasury) that defines the cost of money to be used for defense contractors. The calculation of imputed interest for a given level of investment requires the amount of Net Book Value (NBV) per year to be calculated. The beginning and ending NBVs per year are divided by two (to get an average) and are multiplied by the current CAS 414 published cost of money rate to yield the total amount of imputed interest. The example assumed a Treasury rate of 14% which was applied to the average book value shown in row 21.
- (4) SUBTOTAL - Row 2 plus row 3.
- (5) PROFIT OF FACILITIES CAPITAL - DoD profit policy provides for profit on facilities capital to be assigned at a range of 16% - 20% of the average net book value of facilities allocated to the contract in accordance with Cost Accounting Standard (CAS) - 414. The book value used in this example is shown in row 21 and 18% of this value was used for this calculation.
- (6) PROFIT ON DEPRECIATION - The additional profit the contractor will realize on the instant, collateral and future contracts. The analysis assumes the contractor will completely recover the investment depreciation costs. Depreciation expense is an allowable cost, and as such, will be included in the cost base for applying profit. The profit level may be influenced by historical contractor levels, but is subject to negotiation. The example used an 8% profit level which is representative of the average profit assigned in the weighted guidelines (WGL) for elements of manufacturing overhead. The 8% profit was applied to the depreciation cost shown in row 19.
- (7) LOST PROFIT ON SAVING - The weighted guidelines profit policy applies profit factors to elements of estimated contract cost. Savings in cost resulting from productive investments (more accurately described as cost avoidances on future contracts) reduce the base for the application of these profit factors and reduce total profit dollar opportunity. The amount of profit is determined by the profit level and the magnitude of the future cost avoidance. The example uses a profit rate of 12% to be applied to the savings which is representative of the profit determining by WGL analyses for a firm fixed price contract. This 12% is applied to the savings shown in row 17.
- (8) PRE-TAX PROFIT - This represents the net sum of rows (4) through (7).

- (9) INVESTMENT TAX CREDIT - A tax credit for certain capital investments allowable by IRS. The percentage (assumed 10% in the example) should be based on current IRS guidelines. The tax credit schedule is based upon the forecast expenditures listed in row (1) and is a source of funds to the contractor.
- (10) ACCELERATED COST RECOVERY SCHEDULE (ACRS) TAX IMPACT - This accelerated cost recovery schedule allows contractors to depreciate investments over a more rapid period for IRS purposes (10 years for buildings, 5 years for equipment, and 3 years for vehicals) than allows under CAS-409. The example assumes a 5 year write off on equipment for tax purposes which is depreciated under CAS-409 over a 9 year period. The contractor benefits through faster depreciation to the extent of 46% (assumed corporate tax rate) of the difference between ACRS and CAS-409 depreciation which is shown in row 24.
- (11) CORPORATE INCOME TAX - The example assumes a 46% corporate income tax rate. IRS guidelines should be consulted in developing/projecting this rate.
- (12) AFTER TAX PROFIT - This represents the net sum of rows (8) through (11).
- (13) CAS-409 DEPRECIATION - Depreciation expense is an allowable cost on government contracts and is a source of funds to the contractor. The example is based on an 8 year life with a sum of the years didgets method of depreciation using a $\frac{1}{2}$ year convention (1st year - $\frac{1}{2}$ year, 2nd year - residual $\frac{1}{2}$ of year 1 plus $\frac{1}{2}$ of year 2).
- (14) AFTER TAX CASH FLOW - This represents the net sum of rows (12) and (13).
- (15) DISCOUNT FACTOR - These are discount factors (from a Present Value of \$1 Table) which allows the present value of the net cash flow for each year to be calculated. The discount factor is determined by trial and error (either by manual or automated methods) and will calculate the internal rate of return of the investment when the total discounted cash flow (row 16) equals the total value of the investment (row 1). Discount factors can be taken from standard tables such as shown in Appendix A. The rate of return in this example is 20%. The example was developed using a computer program available under the COPPER IMPACT system which fixed the rate of return at 20% and allowed the Shared Savings (row 2) to vary to determine the incentive amount needed to achieve a 20% rate of return.
- (16) DISCOUNTED CASH FLOW - This represents this product of row 14 times row 15. Note that the discounted cash flow equates to the original cost of the investment which means that the stream of income, discounted at 20% in the example, equates to the present value of the investment.
- (17) PRODUCTIVE SAVINGS - The example assumes that the savings for the first year will reduce contract cost by 30% of the investment cost shown in row 1. These savings has been escalated at a 10% rate to reflect the impact of inflation.
- (18) BEGINNING BOOK VALUE - This represents the book value of the investment depreciated using CAS 409 depreciation.
- (19) DEPRECIATION - This represents depreciation which was based on an 8 year life with a sum of the years didgit method of depreciation using a $\frac{1}{2}$ year convention. See subparagraph (13) above.

(22) ACCELERATED COST RECOVERY SCHEDULE DEPRECIATION - This is an accelerated depreciation rate allowed by IRS. Depreciation rates are taken from the IRS schedule.

(23) CAS 409 DEPRECIATION - See Subparagraph (13).

(24) DIFFERENCE - Difference between rows (22) and (23).

DATA NEEDED FROM CONTRACTORS FOR ROI ANALYSIS

(1) INVESTMENT PROFILE - Investment dollars by year.

(2) CAPITAL SPENDING HURDLE RATE - The hurdle rate is the rate of return that must be generated by a capital spending project for it to be a desirable economic undertaking. It is not mandatory that the government analysis use this rate, however this rate should be considered in government deliberations on an appropriate rate to be used.

(3) OPERATING ADVANTAGE - Projected savings by year. (Operating Advantage can be expressed as percent of the total investment) Projected savings should be provided along with industrial engineering analysis of projected costs with and without the capital investment. Sufficient detail should be provided with this analysis to allow independent government review of the projected savings/cost avoidances.

(4) PROJECTED DEPRECIATION - Projected depreciation flows should be provided with projections based on both CAS-409 and accelerated cost recovery schedule depreciation guidelines.

(5) CONTRACTOR PROPOSED SHARED SAVINGS - The contractor proposed shared savings (if needed)/proposed business arrangement. (Note additional information will be required to satisfy the requirements of DAR 3-815 where use of a capital investment incentive is contemplated.)

TABLE II
RETURN ON INVESTMENT ANALYSIS

INTERNAL RATE OF RETURN - 20.0%	YEAR										
	0	1	2	3	4	5	6	7	8	9	
(1) INVESTMENT	100.00										
(2) SHARED SAVINGS		5.01	4.16	3.13	2.25	1.51	.92	.48	.17	.04	
(3) ADD - IMPUTED INTEREST CAS 414 @ 14%	13.20	13.20	11.00	8.30	5.90	4.00	2.40	1.30	.50	.10	
(4) SUBTOTAL		18.21	15.16	11.43	8.15	5.51	3.32	1.78	.67	.14	
(5) ADD - PROFIT ON FACILITIES @ 16%		17.01	14.13	10.64	7.63	5.13	3.13	1.62	.59	.13	
(6) ADD - PROFIT ON DEPRECIATION @ 8%		.90	1.70	1.40	1.20	1.00	.80	.60	.30	.10	
(7) LESS - PROFIT ON SAVINGS @ 12%		-3.60	-3.96	-4.36	-4.79	-5.27	-5.80	-6.38	-7.02	-7.72	
(8) PRE-TAX PROFIT		32.52	27.03	19.11	12.19	6.37	1.46	-2.38	-5.45	-7.35	
(9) INVESTMENT TAX CREDIT @ 10%		10.00	.00	.00	.00	.00	.00	.00	.00	.00	
(10) ACCL COST REC SYST TAX IMPACT		4.10	5.10	2.70	.30	-2.00	-4.50	-3.20	-1.90	-.60	
(11) CORP INCOME TAX @ 46%		-14.96	-12.43	-8.79	-5.61	-2.93	-.67	1.10	2.51	3.38	
(12) AFTER TAX PROFIT		31.66	19.70	13.02	6.88	1.44	-3.71	-4.49	-4.84	-4.57	
(13) CAS 409 DEPRECIATION		11.10	20.80	18.10	15.30	12.50	9.70	7.00	4.20	1.30	
(14) AFTER TAX CASH FLOW		42.76	40.50	31.12	22.18	13.94	5.99	2.51	-.64	-3.27	
(15) DISCOUNT PERCENT FACTORS		83.33%	69.44%	57.87%	48.23%	40.19%	33.49%	27.91%	23.26%	19.38%	
(16) DISCOUNTED CASH FLOW		35.63	28.12	18.01	10.70	5.60	2.00	.70	-.15	-.63	
(17) PRODUCTIVE SAVINGS @ 30%		30.00	33.00	36.30	39.93	43.92	48.32	53.15	58.46	64.31	
DEPRECIATION INFORMATION											
(18) BEGINNING BOOK VALUE		100.00	88.90	68.10	50.00	34.70	22.20	12.50	5.50	1.30	
(19) LESS - CAS 409 DEPRECIATION		-11.10	-20.80	-18.10	-15.30	-12.50	-9.70	-7.00	-4.20	-1.30	
(20) ENDING BOOK VALUE		88.90	68.10	50.00	34.70	22.20	12.50	5.50	1.30	.00	
(21) AVERAGE BOOK VALUE		94.50	78.50	59.10	42.40	28.50	17.40	9.00	3.30	.70	
(22) ACCL COST REC SYST DEPRECIATION		20.00	32.00	24.00	16.00	8.00	.00	.00	.00	.00	
(23) LESS - CAS 409 DEPRECIATION		-11.10	-20.80	-18.10	-15.30	-12.50	-9.70	-7.00	-4.20	-1.30	
(24) DIFFERENCE		8.90	11.20	5.90	.70	-4.50	-9.70	-7.00	-4.20	-1.30	

CHAPTER THREE

CONTRACT INCENTIVES

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TERMINATION PROTECTION

Background

Many studies and surveys, have identified the uncertainty of defense contracts as the major impediment to making cost reduction investments. The annual buy syndrome makes long range financial planning difficult and more importantly, risky. Heavy up-front investment is required while the payback period is usually in excess of three years. Full recovery for ROI purposes often takes up to twelve years depending on the depreciation methodology allowed by various government regulations. In this type of an environment it is hardly a wonder that many times defense contractors do everything possible to reduce the level of investment applicable to government contracts. Defense contractors have maximize their use of government furnished equipment and facilities. Extensive use of labor versus capital has characterized the defense industry. Prime contractors strive to subcontract whenever possible or to rent or lease facilities instead of actively pursuing innovative manufacturing cost reduction programs which would require large amounts of capital. The large number of government furnished facilities coupled with favorable payment provisions has allowed defense contractors to achieve fairly high returns on the company funds actually invested in a particular defense program.

Current defense contracting policies stress that contractors should be expected to provide the facilities required to perform on government contracts.

Termination protection provisions have been designed to make defense business more attractive by providing a guaranteed long term business base against which investment costs can be recovered. These provisions provide the contractor and the Government some of the benefits found in multiyear contracting.

The termination protection provisions outlined in the Defense Acquisition Regulation (DAR), entitled Capital Investment Incentives (DAR 3-815) are designed to provide for possible Government acquisition of certain identified pieces of severable plant capital equipment in the event of Government termination or failure to procure a specified number of systems. The provisions do not provide the contractor with complete risk protection. They permit the Government to acquire specific capital investments at no more than the depreciated value.

Use of Termination Protection Provisions

Termination protection provisions are not designed for use in every defense acquisition situation. The Government must be prepared to pay for the covered capital equipment in event the provisions are exercised.

The most important criteria for use of the termination protection provision concerns the benefits to be gained from such use. The benefits to the Government must be significant and clearly identified. Benefits will generally be expressed in terms of reducing the price the Government must pay for the supplies it must purchase, reducing lead time, or improving quality. Benefits can be expressed in terms of reducing the contract price for items already on contract or in avoiding costs on future acquisitions. The planned benefits to the Government must be determined to outweigh the potential negative aspects of buying back the capital equipment in the event the provisions are exercised.

In the final analysis, the Government must have confidence that the system or component will survive the budget process for the period covered by the termination protection provisions. Neither the contractor nor the Government will reap the planned benefits of the cost reduction investment program if the system or component is not produced. The termination protection clause costs the Government nothing if the system component is produced in sufficient quantities to satisfy the requirements of the clause.

Specifics of DAR 3-815

Severable Assets

The provisions of DAR 3-815 are essentially those of a termination protection clause. The provisions are applicable only to severable plant equipment. Severable means that the equipment can be moved with a reasonable amount of effort. Nonseverable assets, such as buildings or other real property, can not be covered by these provisions. In addition, each item of equipment (including associated accessories) must have a unit cost in excess of \$10,000.

Benefits

The savings which are forecasted to accrue to the Government must exceed the planned investment costs. The amount of the forecasted savings must be balanced against the possibility that the Government will have to buy-back the equipment

from the contractor. The equipment should also be evaluated to determine if it is of a general purpose category. General purpose equipment is easier to sell to other contractors thereby reducing the potential loss to the Government of buying back the equipment.

The forecasted savings must be reflected in current and future contract prices for the systems or components being acquired. The contracting officer and the price analyst must insure that adequate contractor documentation is submitted to verify that the forecasted savings are actually incorporated into the contract.

Contracting Officer's Determination

Prior to utilizing the provisions of DAR 3-815, the contracting officer must complete a written determination that the contractor will not make the investment without the use of a termination protection provision. The contracting officer must use sound business judgement when completing this determination. Section 3-815(c) of the DAR provides a listing of the required areas to be evaluated. The contracting officer must work closely with Government functional specialists in completing the determination. Manufacturing personnel can analyze the cost reduction program and evaluate its impact on the contractor's make-or-buy plan. They can also assist the contracting officer in performing an analysis of the investment costs and the Government savings. This determination must be filed in the official contract file.

Contractual Requirements

DAR 3-815(f) lists 16 separate contractual requirements which must be incorporated into any resultant Capital Investment clause. No model clause is provided in the DAR. The clause must be developed by the contracting officer. To assist in this task a model Capital Investment (Termination Protection) clause can be found in Appendix C. This clause contains the required 16 DAR provisions along with other provisions.

Approval Authority

The approval authority for the use of the capital investment incentives described in DAR 3-815 is the Secretary of the Military Department or the Director of DLA. Authority up to \$50 million (contingent liability) may be delegated to the Head of Contracting Activity (HCA).

Congressional Notification

The fiscal authority who commits funds to the contract containing the termination protection provisions must certify that the following actions have been completed:

- (1) The Approval Authority has approved by fiscal year the amount of contingent Government liability; and
- (2) The Approval Authority has notified the Congress in advance that the technique will be used on a specific weapon system or material program element. Unless there are unusual circumstances, this notification will be included in the justification material submitted to the Congress in support of authorization and appropriation requests. A copy of such advance notification shall be retained in the contract file.

purpose of the advance notification to the Congress is to make them aware that such a contingency exists on a certain program and that funds would have been provided in the event the program is terminated.

DAR 3-815(e), (f) and (g) for negotiation, contractual and administrative requirements.

AWARD FEE

Background

Award fee provisions are often associated with methods to determine the magnitude of the fee a contractor can earn on a particular contract. Generally they are used in conjunction with cost type development contracts. Often the contract will have a basic fee which can be increased (up to a maximum level) by exceptional performance by the contractor. The performance often involves cost goals (design to cost and/or life cycle cost) and/or technical performance. While these applications are often referred to as award fee provisions, they are more correctly performance incentive provisions. An award fee provision should not objectively measure performance, it should involve subjective evaluation of performance.

Use of Award Fee Provisions

Award fee provisions are especially useful in situations where a well-defined statement of work (SOW) can not be written. General tasks can often be described but a well-defined deliverable product is often impossible to define. Major manufacturing cost reduction programs, involving the development of new manufacturing technology, are prime candidates for the application of an award fee provision. The success of these programs is largely dependent upon the ability of the management team and the level of support provided by the functional departments of the company. The award fee provision can provide the motivation for the contractor to establish an effective organization capable of implementing an innovative manufacturing cost reduction program.

The size of the award fee incentive should be of sufficient magnitude to provide a real incentive for the contractor to perform in an outstanding manner. The complexity of the modernization program and the level of the benefits to be derived by the Government are primary factors in determining the dollar amount of the potential fee. In addition to establishing a reasonable incentive fee, the Government must use sound judgement in determining the amount of the fee the contractor should be awarded. The contractor should be provided with the award fee criteria early in the evaluation period and periodic feedback should be provided. The contractor should know what kind of performance is expected to earn the full incentive. The Government should not hesitate to award the full incentive if the contractor performs successfully as measured against the award fee criteria. Inconsistency on the part of the Government will cause an award fee provision to be completely ineffective. The contractor must have confidence that truly outstanding performance will be rewarded. On the other hand, the contractor must be convinced that average or poor performance will not be rewarded.

etter the baseline cost estimate. Conversely, little actual experience can result in an unreliable baseline cost projection. An unreliable baseline cost projection will lead to unreliable cost savings projections and meaningless measurement of benefits. A poor baseline can result in overstating or understating the benefits of the manufacturing cost reduction program

Another major problem in validating cost reduction benefits is that of quantifying the effects on support and indirect cost elements. Indirect costs by their very nature are difficult to identify with particular cost reduction investments. Typically indirect costs support many diverse cost centers and are allocated to a program or a contract as a percentage of the direct cost base. This relationship makes it very difficult to determine accurately if indirect costs are actually reduced proportionately to the reduction in direct costs.

For example, if direct costs are reduced by \$100 and the overhead rate is 100%, are indirect costs really also reduced by \$100? The answer is not very definitive. It is clear that indirect costs will not be reduced merely because a negotiated overhead rate exists. Historical ratios between direct and indirect labor costs tend to support the belief that indirect costs are tied to direct costs. That is, a reduction of direct costs should allow for a proportional reduction of indirect costs. The key point to remember is that indirect costs are not automatically applied to the indirect cost pools if these costs are to be reduced along with the direct costs. Without such attention it is quite possible for indirect costs to remain constant or even increase despite a major reduction in direct costs.

HOW TO VALIDATE SAVINGS

Systems for validating savings are often referred to as performance assessment systems or post-installation assessment procedures. Procedures to validate cost savings involve comparing the old method/process (baseline) with the new method/process. The baseline cost is developed by projecting old method/process standard hours with the appropriate learning curve for the task centers or operations. The unit cost for the new method/process is also projected by using a standard hour base on the appropriate learning curves. The difference between the baseline (old process) and new process is the cost savings. (See Figure 2).

The above conceptual framework is complicated by quite a few factors. First, the assessment procedures do not measure cost savings. They record and measure direct labor hours. Cost savings numbers are derived from the direct labor hour projections by applying appropriate estimating factors such as overhead rates, fringe benefits and general and administrative rates. These rates change from year to year, if not more often. Thus, validating cost savings is somewhat a misleading term as only direct labor hours can be easily compared.

Another factor which complicates the validation process is the sheer magnitude of the problem. The amount of data required to project baseline hours and new processes is tremendous. The data must be collected at a low enough level (task center or machine) to allow valid comparisons to be made between old and new processes. Often data must be collected and analyzed by particular

CHAPTER SIX

BENEFIT TRACKING

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IMPORTANCE OF VALIDATING SAVINGS

Forecasted cost savings are the basic justification for any manufacturing cost reduction program. A sound system for computing cost savings must be developed by the contractor and approved by the Government. This system must be well documented and based upon sound logic. More importantly, the system must be integrated into the overall factory planning system. It must be consistent with the manner in which the company collects and proposes costs. The development of an auditable, reliable and accurate cost savings methodology is extremely important to the success of a manufacturing cost reduction program.

As important as cost savings projections are, they do not provide a measure of the ultimate success or failure of a manufacturing cost reduction program. The success or failure must be measured by the actual results of the program, not the expected results.

A system to measure the results of the cost reduction program is required to provide management with a feedback mechanism to judge the progress of the program. Near real-time feedback allows management to make adjustments to the program in a timely manner. Problems can be highlighted and solutions can be implemented to modify the program as applicable. The lack of a reliable measurement system can lead to complacency and failure to achieve the desired results.

PROBLEMS IN VALIDATING SAVINGS

A major problem in validating savings from a cost reduction program involves establishing an accurate cost baseline. The cost baseline is critical to making savings projections and to measuring actual resulting benefits. We must be able to compute the current cost accurately and to project this cost into the future.

This projection or baseline is based upon current production methods and technology. The baseline is referred to as the "old" method of production.

The accuracy and reliability of the baseline cost projections is heavily dependent upon the amount of experience the company has in producing a given product. Generally speaking, the more actual production experience the

termination protection provision would reduce the factor used in the facilities Capital Investment factor. The contracting officer must use sound judgment when completing the weighted guidelines and negotiating a fair and reasonable profit level.

The overriding consideration when negotiating DoD contracts should center on reducing costs, not profits. The concept of contracting for manufacturing cost reduction investments is based upon trading increased profit for reduced cost. Government negotiators must avoid being preoccupied with profit and provide adequate attention to cost.

ASSESSING BENEFITS TO THE GOVERNMENT

In negotiating a sound business arrangement due consideration must be given to the benefits accruing to the Government. Criteria to be met in order to establish capital investment incentives are set forth in DAR 3-815. In general, the overall savings that will accrue to the Government on the program(s) for covered equipment should exceed the related investment costs by a margin sufficient to make the use of this equipment economically viable. Other factors which should be considered include the impact on quality, reduced lead times, additional surge capability, as well as reduced operating and maintenance costs.

Alternative investments can be ranked in terms of payback for each project, which is the anticipated savings during the payback period divided by the cost to government. Constant year dollars as well as comparable payback periods should be utilized in performing payback calculators.

It must be remembered that calculating the firm's cost of capital is not as definitive as the resulting number would appear. A business enterprise is continually changing. Price-to-earning ratios change, debt-to-equity ratios change, book value per share changes, and finally the stockholders or prospective stockholders often change their minds in regards to what kind of performance they expect out of a given firm. Keep in mind that numbers are only approximations of the real world. They are often better than a guess but shouldn't be treated as gospel either. The cost of capital calculation is merely a tool to be used in determining a reasonable ROI. Common sense, judgment, industry experience and intangibles, such as increased future sales should all be used as a base to negotiate a reasonable contractor ROI.

NEGOTIATION SPECIFICS

Evaluating ROI

ROI becomes a negotiation item when the specific acquisition does not provide the contractor with the potential to earn a reasonable ROI. It is the contractor's responsibility to show why he feels the ROI is not sufficient. If both parties agree that the current environment does not provide for an adequate ROI, then a current environment provision should be negotiated which will provide the opportunity for the contractor to earn a reasonable ROI.

The ROI should not be guaranteed to the contractor nor should it be explicitly stated in the contract language. The language of the shared savings provision should establish the conditions which allow, not guarantee, the contractor the opportunity to realize a reasonable ROI. The actual ROI number should never appear in the contract language as the inputs to the ROI model are constantly subject to change which in turn will change the investment ROI. The future environment is a risk which each party should agree to bear without recourse to a contract adjustment.

Use of Weighted Guidelines

The DoD profit policy has been revised over the years in an attempt to make it more responsive to the investment requirements associated with DoD acquisitions. Much of this policy has been directed toward modifying the weighted guidelines procedures (DAR 3-808) for profit determination. Specifically, two areas have been added to address a contractor's investment in capital equipment. These areas are (1) Facilities Capital Investment (DAR 3-808) and (2) Special Factors - Productivity (DAR 3-808.8). Facilities Capital Investment is designed to allow a profit factor for the amount of facilities employed by the contractor. The productivity profit factor is designed to reward a contractor with a positive profit factor for being able to demonstrate a cost reduction on follow-on contracts attributed to productivity gains.

Contracting officers must use these techniques in negotiating a fair and reasonable profit objective, not negotiating the lowest profit level possible. The factors of Facilities Capital Investment and Productivity should be assessed in light of any capital investment incentives which have been incorporated into the current or previous contracts. A shared savings provision would obviate the provisions of the Productivity special profit factor. A

There are many approaches to determining an appropriate ROI for a particular investment. A common approach is to survey similar companies in an effort to determine an industry-wide average ROI for a certain type of investment. This method might be adequate if we could be sure we were dealing with an average (representative) company. A better method is to calculate the firm's approximate cost of long term financing. Unless overriding circumstances exist, it is not logical to expect a company to invest in a project which does not provide a return equal to the company's cost of long term financing (hereafter referred to as cost of capital). The firm's cost of capital is often established as an official "hurdle rate" for the company. That is, an investment must have a projected ROI greater than the firm's cost of capital to be considered a viable investment alternative.

Calculating a firm's cost of capital can be complex and is rarely an exact science. It is composed of equity financing and debt financing. The ratio of debt to equity financing will vary from company to company and is generally expressed as a ratio.

The cost of equity financing is defined as the minimum rate of return that must be earned on equity financed investments to keep unchanged the value of existing common equity. The price-to-earnings ratio of the company's stock is used as a guide to establish the cost of equity capital. The cost of equity capital is generally equal to the price-to-earnings ratio of the stock when it is selling at or near book value per share. Thus, a price-to-earnings ratio of 5 when the stock is selling at or near book value would equate to a ROI of 20% for investments financed wholly by equity capital (ROI = earnings per share divided by price per share or $1/5 = 20\%$). The key is to determine the stock is selling at or near its book equity per share. This information can be provided from computer data bases or by subscribing to such applications as Moody's Investor Service.

The cost of debt financing is defined as the rate of return that must be earned on debt-financed investments in order to keep unchanged the earnings available to common shareholders. Thus, the cost of debt financing is the interest rate of the debt financing, for if the firm borrows and invests funds to earn a before-tax return just equal to the interest rate, then the earnings available to common stock remain unchanged.

As mentioned earlier, the cost of capital for a particular firm is generally made up of part equity and part department financing. This ratio is termed the firm's debt to equity ratio (e.g., 1 to 8 would indicate that the company generally finances [on the average] its investments by 8/9ths equity and only 1/9th debt). Based upon these considerations the cost of capital for the hypothetical firm in the above example would be calculated as follows:

$$\text{Required ROI} = \left(\frac{8}{9} \times \frac{\text{Equity cost}}{\text{cost}} \right) + \left(\frac{1}{9} \times \frac{\text{After tax debt cost}}{\text{cost}} \right) = 18.7\%$$

* ROI for equity only financed investment

** ROI for debt only financed investment

Percentages are

examples only

DEGREE OF COMPETITION

The degree of competition will often go a long way towards shaping the objectives of the contractor. The contractor's number one objective is generally to win the competition. In such an environment the contractor will probably be quite receptive toward the Government's requirement or desire to initiate a manufacturing cost reduction program. Incentives such as termination protection and/or shared savings provisions may not be required when price competition exists. The manufacturing cost reduction ground rules should be placed in the request for proposal (RFP) so that the contractors can include a cost reduction plan in their response to the RFP.

CALCULATING ROI

Calculating the ROI for a given investment is the first step in determining (negotiating) a reasonable contractor ROI. The Government and the contractor must agree upon a method to calculate ROI and must also agree upon the inputs to the ROI calculation. An extremely important input to any ROI calculation is the estimate of the projected cost savings resulting from the cost reduction investment. The contracting officer should rely on representation from manufacturing (production), engineering and financial management when determining the reasonableness of the savings estimate. This estimate is important for reasons beyond the ROI calculation. The program savings (cost avoidance) numbers may be used (at a later date) to adjust the system budget forecast and to negotiate the cost of the production contract. The model presented in Chapter 2 should be used as a guide in calculating the contractor's ROI.

A REASONABLE ROI

A sufficient ROI is generally a principal motivation for a company to invest in new, modern production equipment. This is true unless the equipment is needed to win a critical contract or is required to produce the product. In most other situations an investment in modern plant equipment must compete against many other alternative uses of a limited supply of funds. Most defense oriented companies have other divisions, including commercial products, in which they can invest funds. There are also many alternative investments which can be made in the traditional money markets such as stocks, bonds and treasury notes.

In evaluating and comparing investments, the concept of risk must be introduced. The cash flows or "returns" from any investment are subject to a degree of uncertainty and may be higher or lower than projected. In a manufacturing cost reduction investment, the main uncertainty is the level of savings actually achieved. An overly optimistic forecast can lead to lower returns than originally projected. A shortened production run can also greatly reduce the actual ROI. There is also a possibility of being excessively pessimistic when calculating the investment ROI. The potential savings may be grossly understated by the planners, thereby presenting an artificially bleak ROI potential. It becomes extremely important to understand all the assumptions which are made concerning the inputs to the ROI model discussed in Chapter 2. The assumptions should be clearly defined and backed up by a sound rationale.

CHAPTER FIVE

THE NEGOTIATION PROCESS

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OBJECTIVE

The overriding objective for a cost reduction program should be to negotiate a sound business arrangement which will provide significant benefits for the Government and the contractor. No magic formula or checklist exists to aid the parties in negotiating such an arrangement. This guide provides basic information which can then be tailored to fit a given acquisition situation. Each party must carefully decide what it is they wish to get from the program and then determine the means to accomplish their goals.

The objective of the program is critical to the eventual success of the program. The program must have clearly stated objectives which are understood and agreed to by both parties. The scope of the program must be defined in terms of dollars to be invested by the contractor and the Government (if applicable). The types of equipment and the risks involved in implementing the program should be mutually understood. The formula for computing potential savings must be agreeable to both parties. The critical issue is to define what you are going to acquire in as much detail as you can prior to actually starting the negotiations. Negotiations will then proceed much quicker with fewer misunderstandings on both sides.

METHODS OF REACHING OBJECTIVE

Once both parties agree on their objectives, they can look at the required means by which these objectives can be reached. Generally speaking the objective of the Government will be to reduce the cost of the subject acquisition while the objective of the contractor will be to increase the profit earned on the contract. Additionally, each party will probably have other objectives which are less easily quantified. The Government may be interested in improving the capability of the Defense Industrial Base (DIB) while the contractor may wish to become more competitive in the future.

Once a mutual understanding of the Tech Mod program is reached, the "top down" analysis of the contractor's facility must be conducted. The top down analysis may be funded by either the Government or the contractor. A proposal for conducting the top down analysis is normally submitted by the contractor.

Tech Mod program management could either be assigned to the specific Project/Program Office which has responsibility for the major weapon system, or a separate Tech Mod management office. *If assigned Tech Mod Responsibility, the Project/Program Office should be the single point of contact in dealing with the contractor. The Office must, however, work closely with the other Services during the life cycle of a Tech Mod program to assure that the Tech Mod provides the greatest benefit to the DoD. Where more than one service is doing business with the Tech Mod contractor, a lead service shall be mutually agreed upon and an inter-service management group established at a sufficiently high level to make commitments.

COMMITMENT

When the Government makes a commitment to fund technology programs, the contractor must make a corresponding commitment to invest in the capital equipment necessary to implement the technology. This commitment should include the specific dollar level of the planned capital investment and should be made as legally enforceable as possible. The following is a sample of how this commitment can be contractually implemented:

The Government plans to invest up to \$ _____ (then year dollars) during fiscal years 19__ through 19__ in establishing new, cost-effective manufacturing methods in support of the _____ system to be implemented in accordance with contractor's plan _____ (incorporated herein by reference) primarily at the prime contractor's facility and also at its subcontractors or potential subcontractor's facilities.

In return for said Government technology funding, the contractor agrees to invest in modern, cost-effective manufacturing capital equipment, including software and related systems required to implement the technology, up to a level of \$ _____ (then year dollars) during fiscal years 19__ through 19__. It is understood that such future investments shall be made by the contractor if they provide the realization of a reasonable return on investment (ROI) to the contractor.

TECHNOLOGY TRANSFER

When Government technology funding is used as an incentive to commit the contractor to plan and implement a Tech Mod program, special contract provisions are required to insure the technology established is transferable to other industry contractors. Provisions must also be included to insure that foreign dissemination is controlled. The technology contract(s) must contain clauses which allow for early dissemination of technical data and insure the technology can be licensed even if proprietary data or hardware is involved in the technology project. The "For Early Domestic Dissemination (FEDD)" and "License" model clauses (Appendices F & G) should be incorporated into the technology contract(s).

Funding for the Tech Mod is a joint Government/contractor venture. Normally the Government provides the bulk of the Phase I & II funds for the initial study and technology application/validation. The contractor provides the majority of the total Tech Mod investment during Phase III, when capital equipment is actually purchased and installed.

The major criterion in any Tech Mod effort is the development of a contractual arrangement that offers acceptable payback to both the Government and the contractor. The Government payback may be based on the reduced system acquisition cost, reduced lead time, increased surge capability or advancement of the state-of-the-art. It is aimed at the return to be realized over the production life of a given system or systems.

INTEGRATING TECHNOLOGY PROVISIONS

Contracting for Tech Mod programs can involve the prime weapons system contract and/or separate contracts for advancing technology. The contract should contain all the implementing provisions, including any required incentive provisions and specific technical provisions necessary to implement the technology portion of the program.

Subcontractors may compete for Tech Mods on the same basis and under the same criteria as prime contractors. Ordinarily subcontractors should develop a cooperative program with a single prime contractor.

A Tech Mod can be originated any of three ways:

- First it can be a requirement contained in a program's Request for Proposal. (See Sample Instructions To Offerors - Appendix H)
- Second, it can be achieved through mutual Government/contractor agreement during performance of a Government contract.
- Third, it can be proposed by a contractor through an unsolicited proposal.

For maximum effectiveness Tech Mod should be considered early in the acquisition cycle and be included as part of the contract strategy. Normally, this consideration should be part of the Industrial Resource Analysis which is required to support Milestones I and II under a Major Weapons System acquisition, however, Tech Mod should also be considered in other non-Major systems acquisition at a similar point of the acquisition process.

A Tech Mod program normally is started on the initiative of buying office personnel. Extensive dialogue between the prospective contractor and the Government normally precedes initiation of a Tech Mod program. There should be a mutual understanding of the Tech Mod concept and what is expected of both parties. The contractor must have a projected business base that will assure an adequate return on investment for both parties.

e. Ensure that manufacturing technologies used to produce DoD materiel are consistent with safety, environmental, energy, product assurance and foreign critical strategic materials dependency objectives of the DoD.

The Manufacturing Technology Program follows DoD's basic policy to rely on private sector investment wherever possible. Manufacturing Technology Program investments will be undertaken with DoD funds only when qualified segments of industry cannot or will not commit private capital to establish manufacturing technology and make it available on a timely basis for public use in support of DoD requirements.

Implementation costs associated with a decision to implement the results of the technology established are often very large. Frequently capital equipment must be procured, modified and installed. This results in heavy up-front costs which often can not be financially justified (insufficient ROI) on Government contracts. One solution is to increase the emphasis on providing incentives to the business community to help insure that manufacturing technology innovations are actually implemented on the production floor. The critical importance of marrying capital investment and manufacturing technology to produce increases in productivity should be stressed.

TECHNOLOGY MODERNIZATION PROGRAM

"Tech Mod" is the term used to describe a partnership between the contractor and the Government directed at increasing the productivity and responsiveness of the contractor by applying capital and technology. The Government agrees to fund validation of advanced manufacturing technology and the contractor agrees to make significant capital investments in modern equipment." The capital investment is over and above what is expected of a contractor given his particular environment.

A Tech Mod is generally accomplished in a three phase effort:

- Phase I is a "top down factory analysis" which both evaluates the needs of the overall facility and identifies candidate manufacturing technologies which are applicable to the types of systems produced in the facility. At the culmination of Phase I is a negotiated "business deal" between the Government and the contractor. The business deal establishes the ground rules for Phases II and III. Considerations include incentives, levels of government and contractor investment, benefit sharing arrangements, applicable technologies, return on investment, etc. (In some case the "business deal" can be agreed to prior to Phase I.)

- Phase II is the development of the enabling technologies and design of the factory modernization enhancements. Phase II also identifies implementation plans, specifies hardware/software operational requirements and validates specific applications through method demonstrations.

- Phase III is implementation of the Tech Mod, including purchase and installation of capital equipment to implement those Phase II candidates that demonstrate highest potential payback.

NOTE: THIS CHAPTER IS SUBJECT TO REVISION BASED ON THE RESULTS OF THE TRI-SERVICE TECHNOLOGY MODERNIZATION DRAFT POLICY COMMITTEE REPORT DUE 30 APR 82

CHAPTER FOUR

GOVERNMENT TECHNOLOGY FUNDING

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BACKGROUND

Government technology funding has existed in the defense industry for many years. The types of technology funding are varied but have generally involved key technologies needed to design state-of-the-art weapon systems. Very little government technology funding has been directed to the actual methods of manufacturing these sophisticated systems. This area was largely left to the private sector. However, more recently, The DoD Manufacturing Technology (MANTECH) program has placed a significant emphasis on improving the way in which weapon systems are produced. The Manufacturing Technology Program refers to the sum total of all DoD investments specifically authorized for establishing validating and demonstrating new or improved manufacturing technology.

GENERAL APPLICATIONS

The objective of the Manufacturing Technology Program is to improve significantly the productivity and responsiveness of the Defense industrial base by engaging in initiatives which:

- a. Aid in the economical/timely production of qualitatively superior weapons systems/components in both direct and indirect manufacturing cost center areas;
- b. Ensure that advanced manufacturing processes, techniques and equipment are available and will be used to reduce DoD materiel acquisition costs;
- c. Continuously advance manufacturing technology to bridge the gap from R&D advances to limited or full-scale production;
- d. Ensure that more effective industrial innovation and capital investment in new plant and equipment are stimulated by reducing the up-front cost and risk of advancing and applying new and improved manufacturing technology; and

adjustments to the contract target price and ceiling price as appropriate. The model contract clause (Appendix E) provides provisions for utilizing the VE concept in various fixed price type contracts.

The VE concept may be applied to future contract requirements for similar items if required to provide the contractor with a reasonable ROI. Payments may be made at the time future contracts are awarded or may be accomplished through the use of a one-time lump sum amount at the time the VE provision is approved. The lump sum method requires the immediate availability of funds, a careful analysis of the number of items to be procured during the sharing period and the probability that these items will actually be produced. Remember, the VE provision is flexible. Sound business judgment is the most important element in the successful modification of the VE provisions to a manufacturing cost reduction program.

Performance Incentive Type Clause

The performance incentive type shared savings provision is designed for use when structuring incentives prior to negotiation and definitization of contract values. In this method, the forecasted savings resulting from the cost reduction program are included in the negotiated price (or in each offeror's price in the case of a competitive source selection). The projected savings should be separately documented and justified. A clear audit trail should be provided to allow verification that the value of the savings has been properly reflected in the contractor's proposal. Depreciation expense associated with the cost reduction equipment is an allowable cost and an appropriate value should be reflected in the contract price.

The shared savings model clause (performance incentive) provided in Appendix E evaluates the contractor's performance in three areas: Investment to Schedule, Facility Implementation to Schedule, and Achievement of Manhour Savings. The performance incentive measures the contractor's performance in implementing a specific list of incentivized equipment and in achieving the projected savings included in the instant contract due to all applicable incentivized equipment. The clause makes reference to Capital Acquisition Requests (CARs) 77-21, 78-1 and 79-1. These are merely the contractor's designation for three separate lists of equipment which have been or will be incentivized by the Government. In the model clause, CARs 77-21 and 78-1 have previously been incentivized by the Government. The model clause shows the calculations required to incentivize CAR 79-1 which contains equipment valued at approximately \$10 million. The projected FY80 savings of \$16 million are primarily due to CARs 77-21 and 78-1. No additional contractor sharing of these savings is to be allowed. CAR 79-1 provides about \$2.5 million of savings for FY80. The total program savings due to CAR 79-1 is approximately \$30 million. An ROI calculation similar to that presented in Chapter 2 showed that the contractor should be provided with an opportunity of earning an 18% share of the total program savings (\$30 million). This share would allow the contractor the potential to achieve a ROI of approximately 15% (determined through negotiation to be a fair and reasonable ROI for the CAR 79-1 investments). The performance incentive would be evaluated at the end of the instant contract performance period and an appropriate payment made to the contractor (outside of any applicable "Incentive Price Revision" clause of the contract). This method, like the VE method, should be modified to fit the individual acquisition characteristics.

any, additional (beyond that provided for by the basic contract provisions) sharing of the resulting cost reduction savings. (Chapter 4 addresses the establishment of equitable sharing relationships during the negotiation process.)

Types of Sharing Provisions

Two ways in which savings from a cost reduction investment can be shared, are the value engineering approach and the performance incentive concept. Neither of these approaches is specifically addressed in the DAR (as cost reduction incentives). Both the provisions of DAR 1-1700 (Value Engineering) and DAR 3-407.2 (Contracts with Performance Incentives) must be modified through the DAR deviation process, to fit the individual cost reduction situation.

A sample shared savings clause is provided in Appendix E. This clause has provisions for the value engineering option and the performance incentive option. Obviously only one of these options will be selected when writing a cost sharing provision for a specific system (contractor). The method of choosing which option to use is discussed below.

Value Engineering Type Clause

Value engineering (VE) type sharing arrangements are patterned after the provisions contained in DAR 1-1700. In general, the value engineering approach is a method of providing contractors with a substantive financial incentive to undertake a cost reduction initiative on the basis of mutual (contractor/DoD) benefit. The concept provides the contractor with a fair proportion of the projected savings over a base large enough to provide an adequate incentive for the contractor to use his resources to seek cost reduction initiatives.

The VE approach to sharing savings generated by a manufacturing cost reduction investment is generally used in a situation where the contract values (target cost, profit, price, etc.) have been established without any consideration being made in the contract cost for the investment under this is often a difficult determination to make and the contracting officer should seek the advice of the contract administration office and the DCAA (if necessary) in making this determination. Equipment forecasts made by the contractor to support the particular overhead rate used during contract negotiations should be evaluated. The administrative contracting officer (ACO) or his representative should have a good idea of what investments have been proposed in the overhead negotiations. Manufacturing personnel should be able to help in this determination by understanding the level of investment required to support the contractor learning curves proposed during contract negotiations. In the final analysis, the responsibility must rest on the contractor to show that the proposed investment was not included in the negotiated contract values.

The VE concept is quite simple. The negotiated contract values are adjusted for the impact of the new investment in a manner which allows the contractor a greater share of the potential contract savings than would normally accrue to the contractor under the original terms and conditions of the contract. The mechanics involve reducing the contract target cost by 100% of the projected savings; increasing the contract target profit by a reasonable share of the projected savings (determined by ROI calculations); increasing the contract target cost for the applicable depreciation costs; and making other similar

Specifics of DAR 3-405.5

General

Award fee provisions are contained under section 3-405.5 of the DAR entitled "Cost-Plus-Award-Fee" (CPAF) contracts. The "award amount" portion of the CPAF contract may be used with either cost or fixed price type contracts when it can be shown to benefit the Government. The award should be determined by contractor performance over and above that which can be objectively measured and incentivized under other forms of government contracts. The Government makes a unilateral determination of contractor performance against criteria contained in the Award Fee clause and the Award Fee plan contained or referenced in the appropriate contract. The determination of the Government is final and not subject to the Disputes clause of the contract.

Award Fee Clause

The award fee provisions are contractually implemented through the inclusion in the system contract of a special clause which defines the evaluation period and the respective amounts of fee available for award. The award fee clause contains items of a general nature which are not expected to change during the life of the provisions. A model award fee clause has been included in this Guide and can be found in Appendix C.

Award Fee Plan

The details of the award fee provision are contained in the award fee plan. The plan generally contains administrative procedures concerning the operation and composition of the Award Review Board and the specific criteria upon which the contractor's performance will be measured. Generally, the detailed criteria cover the initial evaluation period and are modified prior to each new evaluation period. The contractor should always be provided with the new criteria prior to the start of the new evaluation period. Any questions the contractor has concerning the criteria should be resolved as soon as possible. Understanding the criteria is critical to the success of any award fee provision. Appendix D contains a sample award fee plan.

SHARED SAVINGS PROVISIONS

Background

Shared savings provisions are methods whereby the contractor and the Government share equitably the benefits resulting from a manufacturing cost reduction investment. The method of sharing depends to a large part on where the system is in the acquisition cycle. The specific business environment is also an important factor. The financial strength of the company along with its philosophy concerning equipment modernization needs to be examined. The commercial/government product mix is critical to this evaluation. Companies with major commercial product lines may have a better opportunity to amortize the cost of new production equipment than do companies with only a government product line. The commercial marketplace is driven by competition, much of which is price competition. This type of competition provides a natural incentive for a company to modernize and seek means of increasing productivity. Companies driven by the competitive market place may commit to buy new equipment for little, if

part number. This entire process involves large amounts of record keeping which can only realistically be performed by some type of computer system. A detailed post-installation assessment system can be very expensive to design and implement. The system must be tailored to the individual manufacturing cost reduction program and the existing capabilities of the company to perform benefit tracking.

No two companies are identical and because of this it is extremely unlikely that any two validation systems will be the same. Particular data bases, computer programs, and accounting systems generally vary from company to company. These differences make it impossible to design one benefit tracking system which could be used by all contractors. However, a general checklist or outline can be useful to virtually every contractor which is primarily a manufacturing concern. This general checklist can also assist the Government team in evaluating the adequacy of the performance assessment model proposed by the contractor. The following steps should be common to most any performance assessment technique:

STEP 1 - Establish the baseline average standard hour value for the task center. Sampling techniques may be appropriate if there are large numbers of parts going into each task center.

STEP 2 - Establish the new machine/process task description and apply the appropriate standard hours.

STEP 3 - Develop learning curves for the baseline and the new machine/process.

STEP 4 - Develop and project the Ship Set No. 1 hours. Final output of step 4 is the delta man-hours that develop the direct labor savings.

STEP 5 - Apply appropriate labor rates to the direct labor hour savings.

INVESTMENT RELATED SAVINGS

While in most cases the majority of savings which result from investments are in the labor area, other related cost savings may be considered. Investments may also yield cost changes in the material area such as different scrap and rework rates. Other collateral savings, or measureable net reductions in the cognizant Military Department's overall documentable projected costs for operations or for support may also be included in the projected investment savings. Further, documented savings may be partially offset by other cost changes such as increased maintenance cost, training cost and depreciation expense. All of these changes in cost must be considered when validating the proposed cost savings amount.

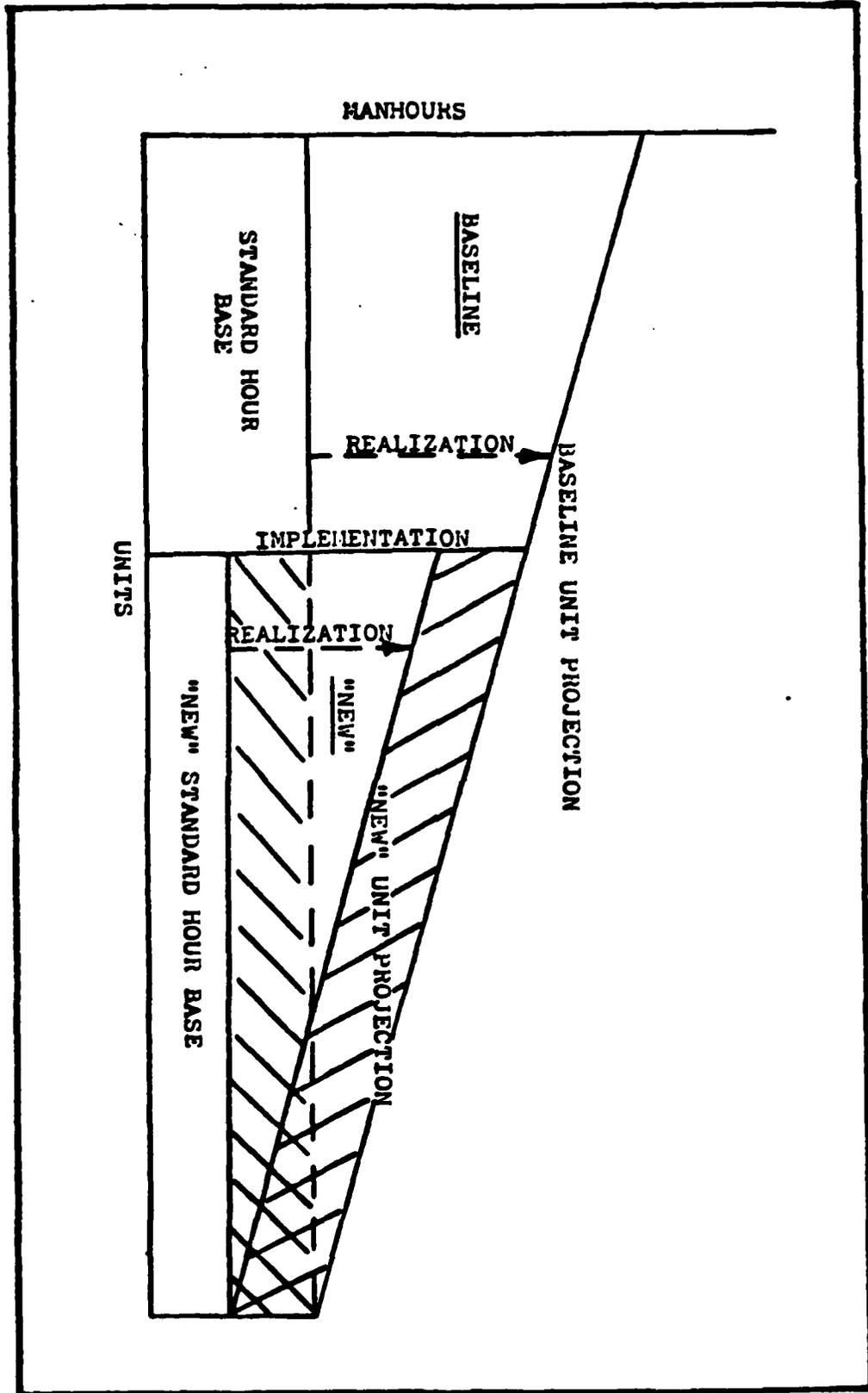


Figure 2 Performance Assessment Concept

APPENDIX A
PRESENT VALUE TABLE

YEAR	6%	8%	10%	12%	14%	16%	18%	20%	24%	26%	28%	29%
1	.943	.926	.909	.893	.877	.862	.847	.833	.806	.794	.781	.775
2	.890	.857	.826	.797	.769	.743	.718	.694	.650	.630	.610	.601
3	.840	.794	.751	.712	.675	.641	.609	.579	.524	.500	.477	.466
4	.792	.735	.683	.636	.592	.552	.516	.482	.423	.397	.372	.361
5	.747	.681	.621	.567	.519	.476	.437	.402	.341	.315	.291	.280
6	.705	.630	.564	.507	.456	.410	.370	.335	.275	.250	.227	.217
7	.665	.583	.513	.452	.400	.354	.314	.279	.222	.198	.178	.168
8	.627	.540	.467	.404	.351	.305	.266	.233	.179	.157	.139	.130
9	.592	.500	.424	.361	.308	.263	.226	.194	.144	.125	.108	.101
10	.558	.463	.386	.322	.270	.227	.191	.162	.116	.099	.085	.078
11	.527	.429	.350	.287	.237	.195	.162	.135	.094	.079	.066	.061
12	.497	.397	.319	.257	.208	.168	.137	.112	.076	.062	.052	.047
13	.469	.368	.290	.229	.182	.145	.116	.093	.061	.049	.040	.036
14	.442	.340	.263	.205	.160	.125	.099	.078	.049	.039	.031	.028
15	.417	.315	.239	.183	.140	.108	.084	.065	.040	.031	.025	.022

APPENDIX B
SAMPLE

CAPITAL INVESTMENT CLAUSE

I. It is understood between the parties hereto that the Contractor in the performance of the work to be performed under the Production Program shall provide plant modernization facilities in accordance with the provision set forth below.

II. APPLICABLE FACILITIES

- A. The items of equipment subject to the provisions of this clause are those items agreed upon and evidenced by a Supplemental Agreement to this contract between the contractor and the Contracting Officer under the conditions as specified below. FY77 and FY78 items, as agreed upon for coverage under this clause, are specifically identified in Attachments X-1 and X-2 respectively. Types of equipment to be covered by this clause for FY79, FY80 and FY81 and subsequent fiscal years are identified in Attachments X-3, X-4 and X-5 respectively. To facilitate implementation of these provisions, the following information will be provided by the Contractor:
1. The estimated capitalized acquisition cost and the gross contract savings resulting from the use of the item(s) of equipment will be verified and supported in format acceptable to the contracting Officer or his designated representative.
 2. The addition of the item of equipment to the appropriate attachment must not exceed the cumulative total amount authorized for coverage as set forth in paragraph II.A.6 below.
 3. The item(s) of equipment must be verified as severable, non-real property and must be within the definition of facilities as defined in DAR 13-101.8.
 4. The item(s) (or items comprising a total piece/set of equipment) must be verified as being required in modernized production planning that minimizes unit production cost.
 5. The contractor amortization schedule must be verified as conforming to its approved accounting system and must comply with CAS 409, "Depreciation of Tangible Assets" and applicable Internal Revenue Service guidelines.
 6. The cumulative capitalized acquisition cost (in then-year dollars) of equipment to be covered by this clause shall not exceed \$ _____ before 1 October 19 __, and \$ _____ thereafter.

7. Items proposed for capital investment shall be documented to the Principal Contracting Officer (PCO) in the following manner:
 - a. Specific cost reduction investments shall be identified by equipment, changes in manufacturing processes and savings (cost avoidance) per ship set.
 - b. Factors to be computed and compared in order to determine savings include but are not limited to labor costs, scrap/rework costs, tooling costs, overhead costs, and other significant cost difference areas such as energy usage and equipment maintenance.
 - c. Equipment investment figures shall include as minimum total capitalized acquisition costs, costs for equipment transportation, installation, anticipated equipment service life, and investment tax credit available thereon.
- B. A specific item of equipment shall become subject to this clause when that item is added to the appropriate attachment. An item may be added to the attachment before it is received by the Contractor. In the event the Contractor has not received an item listed on such attachment, and a termination action contemplated by paragraph III hereof occurs, the Government may elect to either pay the applicable cancellation charges or allow the contractor to continue the acquisition of the item. If the Government elects to allow the Contractor to continue acquisition of the item, the item becomes subject to the provisions of paragraph III hereof upon delivery of such item to the Contractor.
- C. Items of equipment substituted for existing items listed in an attachment, or added to an attachment, will be subject to the provisions of this clause. Items deleted from an attachment, other than by operation of termination procedures set forth in paragraph III hereof, shall be accomplished in accordance with the "Changes" clause of this contract.

III. TERMINATION PROCEDURES

- A. It is expressly recognized and agreed upon by the parties hereto that the termination provisions were mutually accepted as a means of providing to the Contractor a partial relief regarding the risks inherent to investment in the acquisition of the items of equipment listed in the attachments. It is recognized that total relief is not intended, and that a portion of the risk is to be borne by the Contractor.
- B. The PCO is required to inform the Contractor (1) within XX days after the third consecutive Annual Defense Appropriation Bill has been signed which does not contain funds for acquisition of any additional production system, or (2) within XX days after the third anniversary wherein no foreign military sales have occurred, or

(3) within XX days after contractual notification of a program termination for convenience, whichever is later, that it is the Government's intent to acquire no additional systems.

- C. In the event that the Government (including foreign military sales) does not procure at least XX production systems under this or subsequent contract(s), or, in the event that this contract or subsequent contracts are terminated for the Government's convenience prior to acquisition of XX production systems, the Contractor will, within 90 days after notification as set forth in paragraph III.B above, provide a list of approved and acquired items of equipment from Attachments X-1, X-2, X-3, X-4 and X-5 hereto, and a list of the items for said attachments which the Contractor wishes the Government to buy. The list shall not include any items which have not been incorporated into the provisions of this clause prior to the Contracting Officer's notice to the Contractor. The Government has the right to buy any or all other equipment covered by this provision whether the Contractor requests it to do so or not. The Government has the right to defer acquisition of those items of equipment needed for contract or program completion. A supplemental agreement shall be executed for any equipment acquired by the Government under this provision. The Government's acquisition of items will be accomplished at sales prices computed by applying the appropriate percentage, set forth below, to the undepreciated capitalized acquisition cost (see Part IV below) of those items acquired and paid for at the time they become available to the Government, less any investment tax credit received or due to be received for those items.

<u>Total Systems Procured</u>	<u>*Percentage of Undepreciated Capitalized Acquisition Cost of Item</u>
1 - 90	98
91 - 310	95
311 - 592	90
593 - 893	85
894 - 1158	80

*Percentages and numbers are subject to negotiations based on risk of the program.

- D. The Contractor's list of items to be acquired by the Government shall include:
1. The date upon which such items will become available for Government possession (this date shall be at least 30 days subsequent to the date of said notice).
 2. The sales price applicable to such items computed in accordance with paragraph III.C above.
- E. Items identified for acquisition by the Government pursuant to this provision shall be disposed of by the Contractor at Government expense upon written notice by the PCO. Such

notice shall be provided to the Contractor within 90 days after Government receipt of Contractor's list(s) of items to be acquired and shall specify disposition of such items as follows:

1. The preparation, protection, and removal for shipment of the affected equipment.
2. The retention or storage of the affected equipment, provided that the Contracting Officer will not direct the Contractor to retain or store any items of equipment in or on real property not owned by the Government, if such retention or storage will interfere with Contractor's operations.
3. The restoration of Government-owned land or buildings incident to the removal therefrom of the equipment.
4. The sales of any affected equipment in such manner, at such times, and at such price or prices as may be approved by the Contracting Officer, except that the Contractor shall not be required to extend credit to any purchaser.

IV. DEPRECIATION/CAPITALIZATION

Attachments X-1 and X-2 hereto set forth the estimated capitalized acquisition cost and estimated on-line dates associated with FY77-FY78 items of equipment. The estimated capitalized acquisition cost represents the total acquisition cost of the applicable equipment plus transportation costs and related costs incidental to installation which are capitalized in accordance with the Contractor's disclosed accounting practices. It is hereby agreed that the capitalized acquisition cost of items of equipment which subsequently become subject to the provisions of Attachment(s) X-3, X-4, or X-5 of this clause, in this or any future contract for production systems, shall be computed in this manner. Depreciation shall commence on the first day of the month following the date on which said equipment is initially installed and rendered operable. Method of depreciation shall be established pursuant to Cost Accounting Standard 409 and applicable Internal Revenue Service Schedules.

V. EQUIPMENT/MAINTENANCE

- A. The Contractor may use the equipment at any of the locations specified in the attachments and will advise the Contracting Officer in writing and obtain the Contracting Officer's written approval prior to moving said item(s) to any other locations other than an operation of (company name) in the performance of (system) work.
- B. Contract or shall perform at no direct cost to this or any other Government contract, all maintenance in accordance with sound industrial practice, including protection, preservation, maintenance, repair, and replacement of parts for the equipment. The Contractor's maintenance obligations shall continue with respect to each item of equipment until such item is removed, abandoned, or otherwise disposed of by the Government, until expiration of the 90-day period prescribed in paragraph III hereof (or any mutually agreed to extension thereto),

or until the Contractor has discharged his obligations under this contract or subsequent contract with respect to such equipment, whichever last occurs.

- C. Unless otherwise directed in writing by the Contracting Officer, the Contractor shall give priority in the use of the listed equipment to the performance of Government contracts and subcontracts and shall not undertake any work involving the use of the listed equipment which would interfere with the performance of existing Government contracts or subcontracts.

VI. OTHER TERMS AND CONDITIONS

- A. Unless otherwise specifically provided in this contract or subsequent contracts, the Government shall not be obligated as a direct charge to any Government contract to restore or rehabilitate any property or facilities of the Contractor or its subcontractors which may be damaged by the installation, use, removal, or storage of the equipment except any such damage as may be occasioned by the negligence of the Government, its agents, employees, or independent contractors.
- B. The Contractor shall hold full title to the items of equipment listed in the attachments and shall bear the risk of loss or destruction thereof or damage thereto. Upon notice of any loss or destruction of or any damage to the equipment, the Contractor shall promptly notify the Contracting Officer thereof and shall take all reasonable steps to protect the equipment from further damage or loss. The Contractor shall make such repairs, replacements, and renovations of the lost, destroyed, or damaged equipment or take such other actions as sound industrial practice may dictate or require. Should permanent loss, destruction, or damage occur to any item of equipment listed in the attachments which cannot be replaced, repaired, or renovated by the Contractor, or in the event an item no longer supports the (system) program, the Government shall not be obligated to continue retention of that item hereunder and it shall be deemed automatically deleted herefrom. If the Contractor transfers any item of equipment to the possession and control of a subcontractor, (see paragraph V.A. hereof) the transfer shall not affect the liability of the Contractor under this clause. Title and risk of loss for each item is accepted by the Government for possession as agreed upon in the supplemental agreement as contemplated in paragraph III.C hereof.
- C. The appropriate provisions of this clause shall be inserted in all subsequent contracts for (systems) up to the production (system). Upon award of such follow-on contract(s) for (systems), said contracts shall have inserted therein the appropriate provisions of this clause which shall remain effective through the acceptance of the (system).
- D. Failure of the parties to agree with respect to implementation of any of the provisions of this clause shall be resolved in accordance with the General Provision entitled "Disputes."

- E. Items of equipment offered by the Contractor for purchase by the Government shall be free and clear of all liens, mortgages, and other impediments to clear title.
- F. Amounts established by virtue of Government acquisition of equipment under this clause shall be included in the total final price of this contract or subsequent contract(s) as appropriately provided for above, provided, however, that said amounts shall be excluded from and shall not consider the provisions of any Incentive Price Revision and Economic Price Adjustment Clauses of this contract or any subsequent contract(s) containing this provision.
- G. Should this contract or subsequent contracts, prior to delivery of the production (system), be terminated for default, the termination provisions hereof shall be null and void, and the rights of the Government as set forth in the applicable "Default" provisions shall apply.
- H. Complete systems, complete processes, or individual items of equipment proposed for coverage under the termination provisions hereof must have a capitalized acquisition cost of \$10,000 or greater.

ATTACHMENT X-1

FY77 Captial Investment to Reduce (System)
Production Costs at (Contractor's Plant)

<u>EQUIPMENT</u>	<u>QTY</u>	<u>COST</u>	<u>ONE-LINE-DATE</u>
1. ASSEMBLY			
Automatic Drilling Assy	1	\$ 150,000	Apr 79
Systems Util Service		750,000	Mar 79
2. MACHINE SHOP			
Profile Mill, 5-A/3-S	4	6,712,000	Apr 79
Profile Mill, 4-A/3-S	1	1,000,000	Mar 80
Maching Center, 4&5 Axis	2	1,470,000	Feb 79
Maching Ctr, 4A Partsmaker	1	586,000	Feb 79
Drill, Cluster Spindle	2	104,000	Apr 79
Lathe, Engine, N/C	1	192,000	Nov 79
Grinder, Universal	1	85,000	Jun 79
Grinder, Centerless	1	80,000	Jun 79
Tool & Cutter Grinder, N/C	1	240,000	Nov 78
Drill Pointer, Semi-Auto	1	34,000	Jun 78
3. SHEET METAL			
Press, Blanking	1	392,000	Mar 79
Press, Punch	3	202,000	Dec 78
Press, Stretch	1	1,250,000	Feb 79
Press, Stretch Draw	1	775,000	Feb 79
Press, Brake	2	94,000	Jul 79
Route/Drill Machine	1	300,000	Nov 79
Refrig Sys	1	80,000	Apr 79
Small Parts Fab Sys	1	250,000	Dec 79
Deburring Machine	1	100,000	Nov 78
Refrig/Portable	8	135,000	Mar 79
4. MATERIAL HANDLING/1ST CUT			
Shear, Auto	1	250,000	Sep 79
Modernize Material Handling Fleet		300,000	Dec 78
5. QUALITY ASSURANCE			
Penetrant Inspection Sys	1	300,000	Apr 79
Moving Scan X-Ray Sys	1	100,000	Apr 79
TOTAL		<u>15,930,000</u>	

ATTACHMENT X-2

FY78 Capital Investments to Reduce (System)
Production Costs at (Contractor's Plant)

<u>EQUIPMENT</u>	<u>QTY</u>	<u>COST</u>	<u>ONE-LINE-DATE</u>
1. ELECTRIC BENCH			
Low Temp Oven w/conveyor	1	\$ 28,000	Feb 79
Wire Cut/Strip Machine	1	7,000	Jul 79
Harness Braiding Machine	5	17,000	Feb 79
2. ASSEMBLY			
Walkie Lift Trucks	3	42,000	Jun 79
Countersink Machine	4	79,000	Sep 79
Rotary Positioning Mach	3	12,000	Aug 79
Permaswage Equipment	3	31,000	Nov 78
Component Test Sys	2	250,000	Jul 79
Robotic Wing Skin Drill Sys	2	160,000	May 79
Rotary Positioning Mach	3	20,000	Sep 79
Rivert Squeezers	3	12,000	Jun 79
Walkie Lift Trucks	5	25,000	Apr 79
Metal Marking Typewriter	1	5,000	Apr 79
Robotic Sys Routing & Drilling	2	120,000	Mar 79
3. FINISHING			
Metal Marking Typewriter	1	4,000	Nov 78
4. FABRICATION			
4/5 Axis Machining Ctr	2	1,470,000	Oct 79
4-Axis H/Spd Profile Mill	2	2,000,000	Mar 80
N/C Lathe	1	192,000	Sep 79
Grinder, Universal	1	85,000	Jun 79
Drill, Cluster Spdl Type	1	52,000	Aug 79
Optical Comparator	1	15,000	Nov 79
Punch Press	2	155,000	May 79
Stretch Press	1	550,000	Feb 80
Portable Refrig	4	45,000	Mar 79
Sheet Deburring Machine	1	100,000	Jun 79
Press Brake	2	195,000	Aug 79
Quick Chill Sys	1	150,000	May 79
Small Parts Fab Sys	Lot	250,000	Oct 79
Deburr Machine Tube	2	7,000	Jul 79
N/C Tube Bending Machine	2	102,000	May 79
Flaring Mach, Tube, D/Flare	2	11,000	Sep 79
Tube Swaging Mach	2	25,000	May 79
Hydraulic Test Stand	1	25,000	Dec 79
Tape Laying Machine	1	990,000	Sep 80
Fluid Jet Machine	1	160,000	Aug 80
Regrig Sys	1	81,000	May 79

FY78 ATTACHMENT X-2 (CONTINUED)

<u>EQUIPMENT</u>	<u>QTY</u>	<u>COST</u>	<u>ONE-LINE-DATE</u>
5. WAREHOUSING & MATERIAL HANDLING			
Side Loader Trucks	2	\$ 1,200,000	Feb 79
Electric Lift Trucks	3	60,000	Mar 79
1.2-- Gal Tank Trucks	4	84,000	Apr 79
Auto Matrl Handling Sys	1	660,000	Nov 79
Auto Bagging Sys-Sm Parts	1	24,000	May 79
6. FIELD OPERATIONS			
Transponder Recorder	1	11,000	Nov 78
Weather Shelter/Fuel Sta	1	12,000	Nov 78
7. PRODUCTION ELECTRONICS/ PRECISION MEASUREMENT LAB			
Test Equipment	59	219,000	Jan 79
8. TOOL MANUFACTURING			
Spotting Press	1	70,000	Dec 78
9. QUALITY ASSURANCE PROCESS CONTROL			
Infrared Spectrometer	1	23,000	Apr 79
Pulse Echo Ultra Unit	1	12,000	Oct 78
Coord Measuring Mach	1	73,000	Aug 79
Rivet Shear Tester	1	15,000	Dec 78
Reflectoscope	1	13,000	Jan 79
Contour Reading Instr	1	15,000	Dec 78
Eddy Current Flaw Detector	1	10,000	Nov 78
Coord Mea Mach	1	343,000	May 79
Photogrammetry Sys	1	160,000	Jun 79
Ultrasonic In Sys/CNC	1	300,000	Jun 80
10. ENGINEERING MATERIALS TECHNOLOGY LAB			
X-Ray Analysis Sys	1	35,000	Jan 79
Press Cure Cyc Controller	1	20,000	Jan 79
Diamond Wire Cutter	1	11,000	Feb 79
Divisions Std Lab	Lot	343,000	Dec 78
Portable Sound & Vibration Analysis Sys	1	10,000	Sep 78
Photographic Data Analysis & Reduction Digitizer	1	11,000	Sep 78
Sequential Wiring Sys	2	12,000	Oct 78
Semi-Auto Wire Mark Mach	2	25,000	Nov 78
Sys Integration Lab	5	37,000	Jan 79
RF Recvr/Voltmeter Sys	1	10,000	Dec 78
Test Equipment	6	20,000	Jan 79
P.C. Board Plating Tank	1	21,000	Mar 79
Photo Resist Developer	1	16,000	Apr 79

FY78 ATTACHMENT X-2 (CONTINUED)

<u>EQUIPMENT</u>	<u>QTY</u>	<u>COST</u>	<u>ONE-LINE-DATE</u>
Hybrid Microcircuit Fab	6	\$ 27,000	Apr 79
Heat Sink Press	1	11,000	Mar 79
Ultrasonic Cleaning Tanks	4	27,000	Apr 79
TOTAL		<u>10,645,000</u>	

ATTACHMENT X-3

Candidate Equipment and Systems
For FY79 Plant Modernization Program

Note: Specific equipment, quantities, and unit cost to be determined and substituted for this attachment by Supplemental Agreement.

<u>TYPE OF EQUIP/OPERATION</u>	<u>OPPORTUNITY FOR REDUCED COST</u>
Computer Machining Ctrs	Enhances product quality, reduces direct labor content
Enhanced Prod Control Sys	Real-time tracking of work in process
Expansion of Robotics Appl	Reduces labor hours, enhances reproducibility of terms
Ultra High Speed Machining	Permit acceleration of delivery schedules
Automated Sheet and Machined Part Deburring Systems	Reduce labor, improves formability.
Computer-Aided Manufacturing Terminal Expansion	Reduce labor through automated production of NC programs and tool design drawings
Computer N/C Direct Numerical Control Sys Expansion	Reduces, production labor, tooling, maintenance, nonproductive machine time, and production support costs
Initial Material Handling Sys, Automated Manufacturing Equip, and Attendant Computer Software/Hardware for Devel and Implementation of Selection Work Ctrs	Increases productivity through centralized, automated control of manufacturing operations
Auto Material Handling Sys	Reduces inventory and labor
Computerized Machine Diagnostics or Maintenance	Reduces machine downtime and maintenance labor
Estimated Installed Cost: \$21,000,000	

d. Both target and ceiling prices shall be adjusted by the amount of a, b and c above. The ceiling shall be adjusted by a factor of target cost adjustment reflecting the previously negotiated ceiling price centage (i.e. 120% of target cost or as appropriate).

3. Contract line item prices shall be adjusted as applicable to reflect the above adjustments in the billing prices for the production contract.

Fixed Price Type Contract

The adjustments described above shall be reflected in an overall raise or increase to the previously negotiated contract price.

a. The previously negotiated contract price shall be reduced the value of the gross contract savings.

b. Said price shall be increased by the value of the contractor's share of the gross contract savings.

c. Said price shall be increased by the value of the estimated depreciation (plus profit) not included in the previously negotiated price.

d. The combination of the above adjustments may result in a decrease or an increase to the previously negotiated contract price.

e. Contract line item prices shall be adjusted as applicable to reflect the above adjustments in the billing prices for the production contract.

CONTRACT SAVINGS

A. The contract savings (both instant and future) computed by the contractor for each proposal shall be verified by the PCO or his authorized representative. Agreement between the contractor and the Government must be reached concerning the total program savings before any proposal can be approved. These mutually agreed upon savings projections will serve as the total program savings to be shared between the contractor and the Government.

B. Only savings generated by items of equipment covered by this clause are to be shared under the special provisions of this clause. Substitute equipment must be approved by the PCO prior to its coverage under this clause.

OTHER TERMS AND CONDITIONS

A. All cost data and savings submitted by the contractor shall be documented in accordance with DAR 16-206.

B. After Negotiation of Contract Values

Adjustment of contract values to provide a shared savings incentive after negotiation of contract values is more complex than negotiating the savings out of future contracts. The negotiated values must be adjusted to reflect the forecasted savings due to the modernization equipment coming on-line. They must also be adjusted to reflect any allowable costs, such as depreciation, which were not included in the contract values. The contractor's share of the savings which will allow the potential for a reasonable ROI can be added to the contract profit or paid to the contractor outside of any provisions such as the Incentive Price Revision clause of the contract. The particular method used must again, as in the above example, be tailored to the specific acquisition situation.

Contract Adjustment

1. To provide the contractor with the potential to realize a reasonable ROI for investing in the production equipment listed in CAR 79-1, the following contract adjustments shall be made to the current production contract. It is realized by the parties hereto that the adjustments outlined herein are designed to provide the contractor with additional financial incentive to carry out a modernization program and to acquire and install the equipment listed in CAR 79-1. No additional Government sharing of the savings generated by the equipment listed in CAR 79-1 shall occur beyond the current production program. All future savings generated by said equipment are hereby understood to be reflected in the price of future contracts for like items and, the contractor shall not share in the savings so reflected in said future contracts.

2. To the extent that applicable modernization equipment depreciation and gross contract savings are not reflected in the pricing of the current production contract, the subject contract shall be adjusted as follows:

Fixed Price Incentive Type Contract

a. Target cost shall be reduced by 100% of the gross contract savings applicable to the current production contract.

b. Target profit shall be increased by _____% of the gross contract savings applicable to the current production contract.

The percentage above shall be from zero percent to a maximum of one-hundred percent, based upon the contractor share required to allow for a potentially reasonable ROI to be achieved by the contractor.

c. Target cost and target profit thereon shall be adjusted for the total estimated depreciation not included in the previously negotiated target cost.

The adjustments for profit and depreciation may actually result, in rare instances, in an increase in price of the current production contract. This may be acceptable if the future savings to the Government are of such a magnitude to warrant an increase in the current contract price.

EXAMPLE:

Facility investment to Schedule = \$8,000,000 (on or ahead of schedule) divided by \$10,000,000 (total value of equipment) x 15% x \$5,400,000 (total performance incentive)

$$= \frac{\$8,000,000}{\$10,000,000} \times .15(\$5,400,000)$$

$$= .8 \times \$810,000$$

$$= \$648,000$$

(3) Achievement of Manhour Savings

Seventy-five percent (75%) of the performance incentive shall be based upon the ability of the contractor to actually achieve the total hour savings projected for the total savings forecasted from CARS 77-21, 78-1 and 79-1 for the FY80 systems. The evaluation of performance shall be made using the performance assessment methodology described in document dated _____. A report on performance assessment shall be prepared for the government 60 days prior to determination of the performance incentive. The value of the performance incentive for achieved cost savings shall equal 75 percent of the total available performance incentive times the percentage of manhours saved for the FY80 program achieved with the equipment. In the calculations, the percentage of manhour savings achieved cannot exceed a value of 100 percent (factor of 1.0). The value of performance incentive earned shall be calculated as follows:

Achievement of Manhour Savings = (manhour savings from equipment implementation) divided by (total projected manhour savings for FY80 buy) x 75% of the performance incentive.

EXAMPLE:

Achievement of Manhour Savings = \$400,000 (manhour savings from equipment implementation) divided by \$600,000 (total projected manhour savings for FY80 buy) x 75% x \$5,400,000 (total performance incentive)

$$= \frac{\$400,000}{\$600,000} \times .75(\$5,400,000)$$

$$= .667 \times \$4,050,000$$

$$= \$2,701,350$$

(4) The total performance incentive shall be equal to the sum of the individual performance incentives outlines above (paragraphs 4d(1), (2) and (3) and shall not exceed 18 percent of the projected savings under paragraph 4a, above.

authorization for acquisition is given to the successful vendor (purchase order date), and the planned on-line date. Specifically, performance shall be based upon the effectiveness of the contractor in meeting its scheduled acquisition commitment dates (purchase order dates). Progress toward these commitments shall be reported quarterly for each major piece of equipment or system. Planned acquisition value for each piece of equipment provides the weighting for the performance incentive calculation.

Full performance incentive shall be earned for all items acquired (acquisition contract signed by the contractor and its vendor) on or before the date (month/year) listed in CAR 79-1, herein, for the applicable equipment. No Investment-to-Schedule performance incentive shall be earned for items of equipment not acquired on or ahead of schedule. The value of performance incentive shall be calculated as follows:

Investment to Schedule Incentive =

(the sum of the planned acquisition value for all items acquired on or ahead of schedule) (total planned acquisition value for items scheduled to be acquired) x 10% of the total performance incentive.

EXAMPLE:

Investment to Schedule = \$8,000,000 (on or ahead of schedule) divided by (\$10,000,000 - total value of equipment) x 10% x \$5,400,000 (total performance incentive)

$$= \frac{\$8,000,000}{\$10,000,000} \times .1 (\$5,400,000)$$

$$= .8 \times \$540,000$$

$$= \$432,000$$

(2) Facility Implementation to Schedule

Fifteen percent (15%) of the performance incentive shall be based upon the ability of the contractor to bring new equipment on-line according to the scheduled on-line dates, per CAR 79-1, herein. Progress toward meeting the on-line dates shall be reported quarterly for each major piece of equipment or system. Planned acquisition value for each piece of equipment provides the weighting for the performance incentive calculation. Full performance incentive shall be earned for all items brought on-line on or before the date listed in CAR 79-1, herein, for the applicable equipment. No Facility Implementation to Schedule performance incentive shall be earned for items of equipment not brought on-line on or ahead of schedule. The value of performance incentive shall be calculated as follows:

Facility Implementation to Schedule = (the sum of the planned acquisition value for all items brought on-line on or ahead of schedule) divided by (total planned acquisition value for items scheduled to be brought on-line) x 15% of the total performance incentive.

percent to the applicable systems and shall be included in the pricing of these systems under said future contracts.

3. The forecasted savings for CAR 79-1 shall be used to determine the amount of gross contract savings to be shared between the Government and the contractor. This savings number shall be the number contained in paragraph 4a, herein. This savings number shall also reflect savings up to and including the xxx production systems resulting from the implementation of equipments outlined in CAR 79-1. It is further recognized that forecasted savings from CAR 79-1 as applicable to the FY81 and subsequent Fiscal Year buys shall not be shared by the contractor under these future contracts, but shall accrue 100 percent to the applicable system and shall be included in pricing of these systems under said future contracts. The contractor shall, through notice to the Contracting Officer, revise the CAR 79-1 savings for any additions or deletions resulting in a change of greater than plus or minus xxxxxx from the forecasted savings number referred to in paragraph 4a, below. Further, only savings generated by items of equipment listed in CAR 79-1, herein, and/or savings generated by the investment in developing technology which do not require equipment investment but are implemented during the time period of CAR 79-1 equipment are to be shared hereunder. Substitute, additional, or deleted equipment may be added by notice by the contractor. Substitute/additional items reflecting a minimum of 2.5-to-1 savings ratio based upon the planned xxx systems program require only data to confirm each analysis. Other items may be substituted/added based upon mutual agreement.

4. The contractor shall be provided a performance incentive of up to 18 percent of the gross savings as calculated in accordance with the provisions of paragraph 3, above.

a. The gross savings target to be used in determining the performance incentive shall be \$xxxxx.

b. The performance incentive shall be determined in (date) and shall be paid within 60 days after the determination or upon acceptance of the final systems delivered hereunder, whichever occurs last.

c. The performance incentive shall be based upon the contractor's performance in the following areas:

- (1) Investment to Schedule - (10%)
- (2) Facility Implementation to Schedule - (15%)
- (3) Achievement of Manhour Savings - (75%)

d. The performance incentive shall be determined using the following criteria and procedures.

- (1) Investment to Schedule

Ten percent (10%) of the performance incentive shall be based upon an assessment of the detailed facilities investments. Performance shall be measured by the contractor's ability to meet schedule commitments for definitive ordering of planned equipment or their equivalents. CAR 79-1 defines the specification completion date, the date that the full contractual

NOTE: The method of sharing depends to a large part on where the system is in the acquisition cycle. The specific business environment is also an important factor. The financial strength of the company, along with its philosophy concerning modernization, needs to be examined. One company may commit to buy new production equipment for little, if any, additional sharing of the resulting savings. Up-front technology funding may be sufficient motivation for many companies to invest in production equipment. Others may value a form of "termination protection" as much or more than increased sharing of savings. The manner in which savings are to be shared will be determined by the ROI the company feels it must achieve on the funds it spends for modern production facilities. The shared savings percentage must always be determined by calculating what is required to give the contractor a possibility of achieving a reasonable ROI.

A. During Source Selection (Prior to Negotiation of Contract Values

This is the optimum time to establish a modernization program. A comprehensive modernization program should be proposed and written into the development and production contracts with no sharing (i.e., Government receives 100 percent of the contract benefits) of the resulting modernization savings. If sharing is required, it should be based upon allowing the contractor the possibility of achieving a reasonable ROI for the dollars to be spent on new production equipment. The method of sharing to be used would be similar to that used when negotiating a new or follow-on contract which has not been definitized (i.e., targets negotiated) prior to defining the modernization investment. The following is but one example of how the savings could be shared.

Contract Adjustment

The following is an example of a "performance incentive" provision designed to allow the contractor to recover a share of the savings for a Capital Acquisition Request (CAR) package of facilities for 1979, which may be just one CAR in a series being incentivized. The percentage of savings for the CAR 79-1 over the xxx planned buy will allow the contractor the potential to earn a reasonable ROI in the CAR 79-1 value.

1. The gross savings forecast due to investments accomplished and committed by the contractor under CARs 77-21, 78-1 and 79-1 for the Fiscal Year 1980 acquisition are included in the target; that is, the amount reflects accomplishment of these savings. The gross amount as established in paragraph 4a, below, is shared between the Government and the contractor through considerations in establishing contract target and through the performance incentive for the contractor.

2. CAR 79-1 provides a listing of applicable equipment to be incentivized by the contract adjustments outlined herein. It contains the value of the facility items (planned funds), specification completion date, purchase order date, and on-line date. Equipment and forecasted savings applicable to the FY80 program are listed in CAR 77-21, 78-1 and 79-1. These forecasted savings shall be used as the measurement base to determine the percentage of manhour savings under the provisions of paragraph 4d(3), herein, entitled "Achievement of Manhour Savings." It is further recognized that forecasted savings from CAR 77-21 and CAR 78-1 equipment as applicable to the FY80 buy and all future Fiscal Year buys shall not be shared by the contractor but shall accrue 100

1. Savings associated with each piece of equipment computed for each fiscal year of the planned program, both authorized and future acquisitions.

2. Total savings figures shall be supported by DD Form 633 when the savings applicable to a previously authorized quantity.

C. The rationale the contractor employed selecting each piece of equipment will be outlined in each proposal.

D. The method for calculation and allocation of savings shall be presented in sufficient detail to allow verification of the proposed savings by the PCO or his authorized representative.

E. The contractor shall complete the necessary computation to establish the Return-On-Investment (ROI) applicable to the CICP. The ROI calculations must use an appropriate discounted cash flow model to compute the following:

1. Contractor ROI without any additional sharing beyond that contained in current authorized contracts, if any.

2. The government/contractor share of the CICP savings required to provide the contractor with a reasonable (consistent with industry standards) ROI for the investment contemplated by the CICP.

F. A statement of the time which a contract modification accepting the proposal must be issued so as to obtain the maximum cost reduction, noting any effect on the contract completion time or delivery schedule.

G. Identification of any previous submission of the proposal or portions thereof, including the dates submitted, the agencies involved, the numbers of Government contracts involved, and the previous actions by the Government, if known.

Proposals shall be submitted to the Principal Contracting Officer (PCO). When the contract is administered by other than the procuring office, a copy of the proposal shall be submitted simultaneously to the Administrative Contracting Officer (ACO). Proposals shall be processed expeditiously, however, the Government shall not be liable for any delay in acting upon any proposal submitted pursuant to this clause.

The Contracting Officer may accept, in whole or in part, by contract modification, any proposal submitted pursuant to this clause. The decision of the Contracting Officer, as to the acceptance of any proposal or part thereof, under this clause shall be final and shall not be subject to the "Disputes" clause of this contract. Notwithstanding the Contracting Officer's decision, the contractor shall proceed diligently with the performance of this contract pursuant to the existing terms and conditions of the contract.

SHARING

If a proposal submitted by the contractor pursuant to this clause is accepted, the contractor shall share in savings realized by the Government in accordance with the following provisions:

APPENDIX E
SAMPLE
SHARED SAVINGS CLAUSE

NOTE: Clause to be modified/tailored to the specific system and included in the contract as a Special Provision.

I. PURPOSE

The purpose of this clause is to incentivize contractor capital investment in cost-effective, modern plant production equipment. It provides the contractor substantial financial incentive to invest corporate funds in an approved capital investment program. It provides the procedures, terms and conditions related thereto, to be utilized by the contracting parties with respect to such selected plant production equipment acquired and installed by the contractor at the contractor's expense. This clause provides sharing arrangements which would allow the contractor and the Government to share in proposed contract cost reductions.

SHARED SAVINGS

This clause applies to a contractor-developed and documented Capital Investment Change Proposal (CICP) and is limited to severable plant production equipment, including associated accessories which would be capitalized in accordance with the contractor's disclosed accounting practices (DAP), but excluding real property. The contractor's investment in such equipment must provide cost savings which will significantly reduce the cost of acquiring the system.

The items of equipment subject to the provisions of this clause are those items of equipment proposed by the contractor and accepted by the Contracting Officer.

At a minimum, the following information shall be submitted by the contractor with each Capital Investment Change Proposal:

A. An equipment listing and procurement plan which includes, but is not limited to the following:

1. The quantity of each item of equipment to be acquired.
2. The cost of each item of equipment to be acquired. This cost should include acquisition costs, costs for equipment, transportation and installation, and any other associated costs required to be capitalized in accordance with Disclosed Accounting Practices.
3. The date the purchase order is scheduled to be placed.
4. The date the equipment is scheduled to be on-line.

B. A Cost Analysis Summary which includes, but is not limited to the following:

commitment of extensive corporate resources, both manpower and capital, detailed in a comprehensive plan and demonstrated through early and rapid integration of modern manufacturing concepts into the _____ program/manufacturing line. Overall commitment will be measured by accomplishment of near-term goals as well as continued pursuit of long range objectives. In addition, management flexibility in recognizing and selecting alternative approaches to achieve the overall program plan is considered essential.

4. Implementation

The modernization effort must be implemented in a timely manner in order to realize the greatest benefit to the _____ program. A corporate commitment of resources consistent with the overall modernization agreement and early transition of each phase of the effort into the manufacturing process is required. The contractor will be evaluated on the degree of actual implementation of new processes, equipment and systems. It is expected that the contractor will maintain a dynamic program that will insure maximum productivity improvement for _____ production/manufacturing.

B. Evaluation Criteria

1. The Contractor's performance shall be evaluated according to the criteria contained in the applicable provision of the contract as supplemented below. Further, a detailed list of specific areas to be evaluated during each award fee period, within the scope of the criteria below, will be supplied to the contractor.

2. Emphasis in the first award fee period will be on commitment. The contractor is expected to establish a high-level corporate task group to define, propose and begin implementation of a program of creative and substantial corporate investment in plant modernization. Subsequent periods will emphasize the aggressive implementation of the overall plan as well as continued development/utilization of innovative manufacturing processes, procedures and techniques. Further, corporate ingenuity, commitment and flexibility assuring timely acquisition of equipment, systems and computer hardware/software required to achieve a modern automated _____ manufacturing facility is expected.

C. CRITERIA

1. Plan

The contractor will be evaluated on the development of a comprehensive modernization plan. The plan should reflect a multi-disciplined approach to program management, identification of the program management team, interaction/interrelationships of this team and an extensive manufacture-cost analysis to identify the most promising areas for increased productivity/cost reduction through modernization. The plan should outline a comprehensive manufacturing process development and implementation program and a coordinated facilitization concept for both equipment/systems and computer hardware/software. The plan will reflect the desired end product (e.g. selected "Work Centers"), detail alternative approaches to achieve this product, delineate major milestones, forecast savings, and outline procedures for tracking achievements and measuring technical, financial and schedule performance. The plan should also include potential modernization benefits at major subcontractors or potential subcontractor levels and will include estimated benefits to the _____ program.

2. Ingenuity

Ingenuity in the utilization of total resources is required to obtain maximum benefit from the modernization effort. Innovative approaches in the formation of a management team, development of and/or utilization of new manufacturing processes, methods and techniques, timely recognition of new ideas, development of advanced manufacturing concepts (e.g. detailed description of selected "Work Centers") tailored for _____ requirements, and identification of investments yielding maximum savings to the _____ program are expected. In addition, aggressive pursuit and use of procedures, approaches and equipment developed throughout the industry and the use of consultants are considered essential to the success of this effort.

3. Commitment

The contractor is expected to aggressively develop and pursue a substantial plant modernization program. This will be accomplished through

APPENDIX D

AWARD FEE PLAN

I. INTRODUCTION

Contract _____ (hereinafter referred to as the contract) contains an award fee incentive provision (Section _____, para _____) applicable to Manufacturing Modernization. The evaluation criteria are set forth below.

II. PURPOSE

This Incentive Award Fee Plan provides guidelines and procedures for evaluating the contractor's performance and establishing the amount of incentive award fee, if any, to be awarded pursuant to the provisions of the contract.

III. ORGANIZATION

The Commander, _____ Division, is the Fee Determining Official (FDO). The Award Review Board (ARB) members are:

Program/Project Director, Chairperson
Others as appropriate

The FDO approves substitutes for the board members.

IV. EVALUATION CONCEPT

A. Evaluation Process

1. The Program/Project Manager will establish procedures to periodically review and assess the contractor's progress and accomplishments.

2. The date, time and place of the Review Board meetings will be established by the ARB Chairperson. The Program/Project Manager will present his assessment of the contractor's performance for the evaluation period being considered. The contractor will also be given an opportunity to brief the ARB on its assessments of its performance for the same period. In addition, the ARB may solicit information or reviews from other organizations as it deems appropriate. After all evaluations and other pertinent information have been reviewed, the ARB will recommend to the FDO its determination concerning the appropriate fee to be paid to the contractor.

3. The FDO will make the final decision and will execute an award fee determination authorizing payment, if any, of an award to the contractor. Each award fee amount for each evaluation period is independent of subsequent periods and no carryover of amounts not awarded is intended. The Review Board Recording Secretary will transmit the determination to the _____ Program Office for use as the authority to promptly issue a contract modification for proper payment to the contractor. In addition, the Program/Project Manager will discuss with the contractor, at the appropriate management level, the final decision of the FDO.

APPENDIX C
SAMPLE

AWARD FEE CLAUSE

The Contractor will be eligible for up to _____ dollars based upon the initiation, management, and successful implementation of a plant modernization program emphasizing creative manufacturing techniques which are intended to reduce the _____ system acquisition cost. This will be evaluated in four time increments with up to _____ dollars available in each increment. The period of the first increment will be from the inclusion of this paragraph until _____. The three scheduled periods shall each be of xx days duration, one following the other. The fee will be based on the Contractor's management commitment and success in planning implementation and investment of the capital resources necessary to generate substantive manufacturing productivity and efficiency improvements of the _____ system and related equipment. The evaluation criteria are set forth in detail in the applicable award fee plan incorporated by reference herein.

ATTACHMENT X-5

Candidate Equipment and Systems
For FY81 and Out Years Plant Mod Program

Note: Specific equipment, quantities, and unit cost to be determined and substituted for this attachment by Supplemental Agreement.

<u>TYPE OF EQUIP/OPERATION</u>	<u>OPPORTUNITY FOR REDUCED COST</u>
Expansion of Robotics Appl	Reduces labor hours, enhances reproducibility of items
Computer-Aided Manufacturing Terminal Expansion	Reduce labor through automated production of NC programs and tool design drawings
Computer NC/Direct NC Control Sys Expansion	Reduces production labor, tooling, maintenance, nonproductive machine time, and production support costs
Complete Production Integration of Selected Work Ctrs	Increases productivity through centralized, auto control of manufacturing operations
Auto Material Handling Sys	Reduces inventory and labor
Auto Inspection Sys to Include Photogrammetric Applications and Other Contact and Noncontact Inspection Methods	Increases reliability, improves traceability and reduces manhours
Automated Warehousing	Expedites assembly, reduces handling costs
Energy Management	Reduces manufacturing and assembly operation cost
Automated Management Information System	Provides performance data for job measurement and detail costs
Estimated Installed Cost: \$20,000,000	

ATTACHMENT X-4

Candidate Equipment and Systems
For FY80 and Out Years Plant Mod Program

Note: Specific equipment, quantities, and unit cost to be determined and substituted for this attachment by Supplemental Agreement.

<u>TYPE OF EQUIP/OPERATION</u>	<u>OPPORTUNITY FOR REDUCED COST</u>
Enhanced Production Control Sys	Real-time tracking of work in process and status of buildup eliminates multiple record keeping systems
Computer-Aided Manufacturing Terminal Expansion	Reduces labor through automated production of NC programs and tools design drawings
Computer/NC Direct NC Sys Expansion	Reduces production labor, tooling, maintenance, nonproductive machine time, and production support costs
Expansion of Material Handling Sys and Integration of Auto Manufacturing Equip and Attendant Computer Hardware/Software into Selected Work Ctrs	Increases productivity through centralized, automated control of manufacturing operations
Expansion of Small Parts Fabrication Ctr	Total production capability Reduces handling & inspection
Auto Material Handling Sys	Reduces inventory & labor
Computerized Machine Diagnostics for Maintenance	Reduces machine downtime and maintenance labor
Energy Management	Reduces manufacturing and assembly operation cost
Auto Management Information Sys	Provides performance data for job measurement and detail costs

Estimated Installed Cost: \$27,000,000

B. Plant production equipment shall be capitalized and depreciated in accordance with the contractor's disclosed accounting practices (DAPs).

3 Atch

1. CAR 79-1
2. CAR 78-1
3. CAR 77-21

CAR 79-1

FUNCTION AND DESCRIPTION	QTY	PLANNED FUNDS	MANHOURS		SPEC COMP DATE	PURCHASE ORDER DATE	ON LINE DATE
			SAVINGS FY80 (175A/C)	USAF			
1. ELECTRIC BENCH Panel and Harness Tester	3	\$ 315	8,721		May 78	Aug 79	Jul 80
2. ASSEMBLY AND SUBASSEMBLY Drivematic Duet Riveters	2	212	3,644		Aug 79	Sep 79	Apr 80; Aug 80
Farnham Countersink Sys. Harness Tester	3	64	4,544		Jan 80	Feb 80	May 80
	3	<u>357</u>	3,176		May 78	Jan 80	Jul 80
TOTAL		\$ 633					
3. FABRICATION MACHINE SHOP							
Precision Lathe	1	\$ 47	137		Oct 79	Feb 80	Jan 81
Drill Press, High Speed	2	35	570		Sep 79	Jan 80	Jul 80
Machining Center, 3x CNC	1	59	628		Oct 79	Feb 80	Sep 80
Vibratory Deburring Machine	1	109	5,287		Apr 79	Sep 79	Jul 80
Turret Lathe, Univ. 3" Bar	2	158	611		Sep 79	Jan 80	Aug 80
Vibratory Finishing Mach.	1	28	1,780		Jan 80	Feb 80	Sep 80
Turret Lathe, Univ. 2" Bar	2	117	611		Sep 79	Jan 80	Aug 80
Milling Machine with MDI	4	<u>433</u>	4,789		Nov 79	Mar 80	Apr 81
SUBTOTAL		\$ 937					
SHEET METAL							
Stretcher Assembly	1	\$ 54	802		Sep 79	Jan 80	Sep 80
Punch Press 45-Ton Turret Type	1	339	4,292		Aug 79	Dec 79	Jan 81
Conveyor System	1	<u>53</u>	149		Jan 80	Feb 80	Aug 80
SUBTOTAL		\$ 446					
TUBE BENDING/WELDING							
Welder Resistance Seam	1	\$ 84	444		Oct 79	Feb 80	Aug 80
Tube Bending System CNC	1	459	7,893		Feb 79	Jul 79	May 80
Vitall Swaging Machine	1	38	681		Jan 80	Feb 80	Sep 80
Crack Film System	1	<u>41</u>	1,120		Sep 79	Jan 80	Jun 80
SUBTOTAL		\$ 622					

CAR 79-1 (Continued)

FUNCTION AND DESCRIPTION	QTY	PLANNED FUNDS	MANHOURS SAVINGS		SPEC COMP DATE	PURCHASE ORDER DATE	ON LINE DATE
			FY80 (175A/C)	USAF			
3. (continued)							
<u>BONDING</u>							
Autoclave Controls	1	\$ 60	492		Jan 80	May 80	Dec 80
Multiple Press Monitoring Sys	1	416	2,098		Jan 80	May 80	Jan 81
SUBTOTAL		\$ 476					
<u>TOOLING SERVICE MANUFACTURING</u>							
Drill Pointer 3" capacity	1	\$ 11	277		Aug 79	Oct 79	May 80
SUBTOTAL		\$ 11					
TOTAL		\$ 2,541					
4. MATERIAL HANDLING							
Electric Guided Tractor Sys.	1	\$ 210			Dec 79	Jan 80	Oct 80
5. FIELD OPERATIONS							
Weather Shelter	2	\$ 44	3,498		Jun 79	Aug 79	Dec 79; Jul 81
Power Source, 400 Cycle	1	\$ 10	660		Jun 79	Jul 79	Feb 80
TOTAL		\$ 54					
6. ELECTRONIC FABRICATION CENTER							
CNC PCB Assembly System	4	\$ 75	25,030		Jun 79	(2)Jul 79 (2)Nov 80	(2)Nov 79 (2)Jan 81
7. INTEGRATED CIRCUITS LAB							
Lamination Press, PHT	1	\$ 43	23,295		Mar 80	Jun 80	Sep 80
Film Processing System	1	45	1,071		Feb 79	Jun 79	Dec 79
PCB Continuity Tester	1	94	5,459		Jan 80	Mar 80	Sep 80
NC Drill	1	132	—		Feb 80	Apr 80	Sep 80
Brush Scrubber	1	22	1,355		Aug 79	Sep 79	Dec 79
TOTAL		\$ 336					

CAR 79-1 (Continued)

FUNCTION & DESCRIPTION	QTY	PLANNED FUNDS	MANHOOURS SAVINGS		SPEC COME DATE	PURCHASE ORDER DATE	ON LINE DATE
			FY80 (175A/C)	USAF			
8. TOOLING MANUFACTURING							
<u>PATTERN SHOP</u>							
Profile Mill, Bridge 3x CNC	1	\$ 370	192		Jan 80	Mar 80	Aug 81
Band Saw 36" Self Adjusting	1	12			Aug 79	Oct 79	May 80
SUBTOTAL		\$ 382					
<u>JIGS AND FIXTURES</u>							
Therodolite/Graphic Sys.	1	\$ 45	1,013		Aug 79	Sep 79	Sep 80
<u>MACHINE SHOP</u>							
Milling Mach. 3x w/MDI	3	\$ 325			Dec 79	Apr 80	Oct 81
Flame Cutting Machine	1	28	705		Sep 79	Nov 79	Apr 80
Tool Grinder	1	11	313		Aug 79	Oct 79	Jul 80
CNC Boring & Milling Mach.	1	511			Oct 79	Feb 80	Jul 81
Profiling Mach. Tracer Cont.	1	750			Nov 79	Mar 80	Sep 81
SUBTOTAL		\$ 1,625					
TOTAL		\$ 2,052					
9. QUALITY ASSURANCE							
<u>PRODUCT ASSURANCE</u>							
Inspec. & Fail. Analysis Sys.	1	\$ 796	10,884		Jan 80	Mar 80	Mar 81 (partial buy)
<u>PROCESS CONTROL</u>							
Automatic Eddy Current Sys	1	\$ 11	372		Aug 79	Oct 79	Apr 80
Slicing and Dicing Mach.	1	11	98		Dec 80	Jan 81	Apr 81
Titration, Auto. Recording	1	23	1,110		Aug 79	Sep 79	Apr 80
Calculating Printer with							
Computer Tape Interface	1	11	529		Aug 79	Sep 79	Apr 80
Machine Tester, Electro-							
Mechanical	1	32			Jan 81	Feb 81	Jul 81
Electro-Mech. Tester	1	62			Jan 81	Feb 81	Aug 81
SUBTOTAL		\$ 150					

CAR 79-1 (Continued)

FUNCTION AND DESCRIPTION	QTY	PLANNED FUNDS	MANHOURS SAVINGS		SPEC COMP DATE	PURCHASE ORDER DATE	ON LINE DATE
			FY80 (175A/C)	USAP			
9. (continued)							
<u>PRODUCTION INSPECTION</u>							
Photogrammetry Sys. Phase II	1	\$ 150	3,902		Aug 79	Dec 79	Jan 81
Photogrammetry Tool Realign Sys	1	140	1,387		Aug 79	Dec 79	Oct 80
X-ray Machine, Portable	1	15			Jan 81	Feb 81	Jun 81
Radiographic Lab Sys.	1	186	950		Sep 79	Dec 79	Sep 80
Univ. Measuring Mach.	1	83	207		Jan 80	Feb 80	Aug 80
Coordinate Measuring Mach.	1	340			Nov 76	Jan 81	Oct 81
Ultrasonic Insp. System	1	400	1,448		Dec 79	Jan 80	Feb 81
Optical Comparator 30"	1	30	1,458		Aug 79	Nov 79	Jun 80
		\$ 1,344					
		\$2,290					
10. FINISH AND SEALANT							
Electric Tug 1	1	\$ 42	130		Aug 79	Oct 79	Feb 80
11. MANUFACTURING TECHNOLOGY							
In-Process Control Insp. Sys.	1	\$ 289			Aug 79	Sep 79	Jun 80
Computerized Matl. Handl. Sys.	1	417			Jun 80	Aug 80	Sep 81
Scrap Removal System	1	51			May 80	Jul 80	Sep 81
Composite Tape Lay. Mach.	1	708			Jan 80	Apr 80	Sep 81
Matl. Loading System	1	53			May 80	Jul 80	Sep 81
		\$1,518					
		\$10,069					

TOTAL
GRAND TOTAL

CAR 78-1

FUNCTION AND DESCRIPTION	QTY	PLANNED FUNDS	MANHOURS SAVINGS		SPEC COMP DATE	PURCHASE ORDER DATE	ON LINE DATE
			FY80 (175A/C)	USAP			
1. ELECTRIC BENCH							
Low Temp Oven w/conveyor	1	\$ 28	1,403		11-78, 5-79	12-78, 10-79	5-79, 3-80
Wire Cut/Strip Machine	1	7	464		Jan 79	Mar 79	Jul 79
Harness Braiding Machine	5	17	7,940		Jul 78	Sep 78	Apr 79
Harness & Panel Test System	1	310	24,742		May 78	Oct 78	Feb 80
TOTAL		\$ 362					
2. ASSEMBLY/SUBASSEMBLY							
ASSEMBLY							
Walkie Lift Trucks	3	\$ 42	170		Nov 79	Jan 80	Jun 80
Countersink Machines w/Handling System	4	79	2,976		11-78, 1-79	11-78, 3-79	Sep 79
Rotary Positioning Machine	3	12	169		Oct 78	Nov 78	Mar 79
Permaswage Equipment	3	31	29,750		Aug 78	Sep 78	May 79
Component Test System	2	250	4,680		May 78	Oct 78	3-80, 5-80
Robotic Wing Skin Drill Sys	2	160	926		Dec 77	Jun 78	Mar 81
Portable Tools	405	692	1,320		6-78 - 10-78	7-78 - 3-79	11-78 - 9-79
SUBTOTAL		\$1,266					
SUBASSEMBLY							
Rotary Positioning Machine	3	20	70		Oct 78	Nov 78	Jan 79
Rivet Squeezers	3	12	1,008		Jan 79	Mar 79	Sep 79
Walkie Lift Trucks	5	25	109		-	-	Cancelled
Metal Marking Typewriter	1	5	200		Sep 78	Oct 78	Jan 80
Robotic Sys Routing & Drilling	2	120	397		Dec 77	6-78, 9-78	1-79, 3-80
SUBTOTAL		182					
TOTAL		\$1,448					
3. FINISHING							
Metal marking Typewriter	1	\$ 4	464		Sep 78	Oct 78	May 79

CAR 78-1 (Continued)

FUNCTION AND DESCRIPTION	QTY	PLANNED FUNDS	MANHOURS		SPEC COMP DATE	PURCHASE ORDER DATE	ON LINE DATE
			SAVINGS USAP	FY80 (175A/C)			
4. FABRICATION							
<u>MACHINE SHOP</u>							
4/5 Axis Machining Centers	2	\$1,470	34,054		Feb 78	May 78	9-79, 2-80
4-Axis Hi-Speed Profile Mill	2	2,000	16,052		Sep 78	Jan 79	Oct 80
N/C Lathe	1	192	3,607		Oct 78	Dec 78	Mar 80
Grinder, Universal	1	85	2,006		Jul 78	Oct 78	Mar 80
Drill, Turret, NC	1	52	6,196		Oct 78	Nov 78	Jan 80
Optical Comparator	1	15	1,956		Oct 78	Nov 78	May 79
SUBTOTAL							
<u>SHEET METAL</u>							
Punch Press	2	\$ 155	1,882		Apr 79	Jul 79	Jul 80
Stretch Press, Transverse Type	1	550	3,802		Apr 79	Jul 79	May 80
Portable Refrigerators	4	45	935		Sep 79	Mar 80	May 80
Sheet Deburring Machine	1	100	2,048		Oct 79	Dec 79	Jun 80
Press Brake	2	195	2,428		Jul 79	Oct 79	Jun 80
Quick Chill System	1	150	1,663		Jan 80	Apr 80	Dec 80
Small Parts Fab System	Lot	250	7,447		11-79 - 5-80	1-80 - 8-80	Oct 80
SUBTOTAL							
		\$1,445					
<u>TUBE BENDING & WELDING</u>							
Deburr Machine Tube	2	\$ 7	930		May 79	Jul 79	Mar 80
N/C Tube Bending Machine	2	102	6,331		Feb 79	Jul 79	Jun 80
Flaring Machine, Tube, Double Flare	2	11	208		Mar 79	Jul 79	May 80
Flaring Machine, Tube, Single Flare	2	7	1,435		Mar 79	Jun 79	Mar 80
Tube Swaging Machine, Dynatube	2	25	1,742		Nov 79	Jan 80	May 80
Hydraulic Test Stand	1	25	2,303		Nov 79	Jan 80	Jul 80
SUBTOTAL							
		\$ 177					

CAR 78-1 (Continued)

FUNCTION AND DESCRIPTION	QTY	PLANNED FUNDS	MANOURS SAVINGS		SPEC COMP DATE	PURCHASE ORDER DATE	ON LINE DATE
			PY80 (175A/C)	USAP			
4. (continued)							
<u>COMPOSITES</u>							
Freezer, Chest Type	1	\$ 5	166		Mar 79	May 79	Sep 79
Tape Laying Machine	1	990	--		Apr 79	Nov 79	Jun 81
Fluid Jet Machine	1	160	--		Sep 79	Dec 79	Jun 81
Refrigeration System	1	81	230		AUG 78	Oct 78	Apr 80
SUBTOTAL		\$ 1,236					
TOTAL		\$ 6,672					
5. WAREHOUSING & MATERIAL HANDLG							
10,000 lb. Side Loader Trucks	2	\$ 120	3,462 (Indirect)		Apr 78	Jun 78	Feb 79
Electric Lift Trucks	3	60	3,497		Sep 78	Nov 78	Apr 79
1,200 Gal Tank Trucks	4	84	1,513		Aug 78	Oct 78	May 79
Automated Mat'l's Handl Sys	1	660	21,329		Jun 80	Oct 80	Jan 82
Automated Sagging Sys for Small Parts	1	24	3,722		Nov 79	Jan 80	Aug 80
Electric Tugs/Composite Area	2	6	931		Apr 78	Jun 78	Feb 79
Elect Tug/Metallurgical Processing	1	3	387		May 78	Jul 78	Feb 79
TOTAL		\$ 975	34,841				
6. FIELD OPERATIONS							
Transponder Recorder, & Remote Control Console	1	\$ 11	1,519		Oct 78	Dec 78	Sep 79
Weather Shelter for Fuel Sta	1	12	2,354		Oct 78	Dec 78	May 79
TOTAL		\$ 219	2,226				
7. PRODUCTION ELECTRONICS/PRECISION MEASUREMENT LAB							
Production Avionics & Calibration Test Equipment	59	\$ 219	2,226		6-78 - 6-79	7-78 - 7-79	12-78 - 12-79

CAR 78-1 (Continued)

FUNCTION AND DESCRIPTION	QTY	PLANNED FUNDS	MANHOURS		SPEC COMP DATE	PURCHASE ORDER DATE	ON LINE DATE
			SAVINGS	USAF			
			FY80 (175A/C)				
8. ENGINEERING TEST SUPPORT Tube Marking Machine	1	\$ 4	76		Oct 78	Dec 78	Jul 79
9. TOOLING MANUFACTURING Spotting Press	1	\$ 70	422		Mar 78	Aug 78	Mar 79
10. QUALITY ASSURANCE PROCESS CONTROL Infrared Spectrometer	1	\$ 23	239		Feb 79	Mar 79	Aug 79
Colorimeter	1	8	689		Sep 79	Nov 79	Mar 80
Precision Analytical Balance	1	6	477		Jul 78	Sep 78	Nov 78
SUBTOTAL		\$ 37					
PRODUCTION INSPECTION							
Pulse Echo Ultra Unit	1	\$ 12	1,436		Jun 78	Jun 78	Nov 78
Coordinate Measuring Machine	1	73	3,329		Mar 79	Jul 79	Feb 80
Rivet Shear Tester	1	15	967		Aug 78	Jan 79	Aug 79
Reflectoscope	1	13	1,033		Oct 78	Dec 78	Mar 79
Boroscope	1	4	1,564		Jul 78	Aug 78	Oct 78
Contour Reading Instrument	1	15	1,571		Nov 78	Feb 79	Aug 79
Eddy Current Flaw Detector	1	10	454		Aug 78	Oct 78	Feb 79
Ultrasonic Tester, Portable	1	4	1,750		Aug 78	Oct 78	Feb 79
Digital Electric Mea Unit	1	6	3,770		Jun 78	Aug 78	Feb 79
Height Gage, Vertical	1	6	1,548		1 Sep 78	Nov 78	Feb 79
Computer Cont Coor Mea Mach	1	343	6,810		Nov 76	Oct 78	Jan 80
Photogrammetry Sys Tooling Assy Fixtures	1	160	5,075		11-78, 12-78	12-78, 3-79	Nov 79
Ultrasonic Inspection Sys CNC	1	300	1,650		May 79	Aug 79	Feb 81
SUBTOTAL		\$ 961	30,957				
TOTAL		\$ 998	32,362				

FUNCTION AND DESCRIPTION	QTY	PLANNED FUNDS	MANHOURS SAVINGS		SPEC COMP DATE	PURCHASE ORDER DATE	ON LINE DATE
			USAF	FY80 (175A/C)			
11. ENGINEERING							
<u>MATERIALS TECHNOLOGY LAB</u>							
X-Ray Analysis System	1	\$ 35	260		Jun 78	Aug 78	Feb 79
Press Cure Cyc Controller	1	20	630		Nov 78	Jan 79	Aug 79
Diamond Wire Cutter	1	11	691		—	—	Cancelled
SUBTOTAL		\$ 66	1,581				
<u>ENGINEERING TEST LAB</u>							
Division Standard Lab	Lot	\$ 343	3,430		4-78 - 7-78	5-78 - 9-78	11-78 - 8-79
Portable Sound & Vibration Analysis System	1	10	539		May 78	Jul 78	Mar 79
Photographic Data Analysis & Reduction Digitizer	1	11	137		May 78	Jul 78	Mar 79
Continuous Duty Tape Punch	1	6	180		Jun 78	Aug 78	Oct 78
SUBTOTAL		\$ 370	4,286				
<u>ELECTRONIC FABRICATION CENTER</u>							
Printed Circuit Repair Station	1	\$ 4	1,150		Jun 78	Aug 78	Feb 79
Sequential Wiring System	2	12	758		Jun 78	Aug 78	Nov 78
Semi-Auto Wire Marking Machine	2	25	1,537		Jun 78	Aug 78	Mar 79
P.C. Board Marking Machine	1	7	1,649		Aug 78	Oct 78	May 79
Floppy Disc System	1	4	222		Jun 78	Aug 78	Feb 79
SUBTOTAL		\$ 52	5,316				
<u>SYSTEMS INTEGRATION LAB</u>							
Systems Integration Lab	5	\$ 37	1,755		7-78 - 10-78	9-78 - 11-78	2-79 - 8-79
RF Receiver/Voltmeter Sys	1	10	348		Sep 78	Oct 78	Mar 79
SUBTOTAL		\$ 47	2,103				
<u>DESIGN & DEVELOPMENT LAB</u>							
Test Equipment	6	\$ 20	656		9-76, 10-78	10-76, 11-78	2-79 - 4-79

CAR 78-1 (Continued)

FUNCTION AND DESCRIPTION	QTY	PLANNED FUNDS	MANHOURS		SPEC COMP DATE	PURCHASE ORDER DATE	ON LINE DATE
			SAVINGS USAF	FY80 (175A/C)			
INTEGRATED CIRCUITS LAB							
P.C. Board Plating Tank	1	\$ 21	460		Nov 78	Jan 79	Mar 80
Photo Resist Developer	1	16	376		Jul 78	Oct 78	Mar 79
Hot Roll Laminator	1	7	210		Jul 78	Oct 78	Jan 79
Hybrid Microcircuit Fab	6	27	1,112		6-78 - 12-78	7-78 - 2-79	3-79 - 9-79
Heat Sink Press	1	11	236		Jul 78	Oct 78	Dec 79
Ultrasonic Cleaning Tanks	4	27	456		Sep 79	Dec 79	Apr 80
		\$ 109	2,850				
SUBTOTAL							
FLIGHT TEST INSTRUMENTATION LAB							
D.C. Differential/Phase Angle Voltmeters	2	\$ 7	15		Jun 78	Aug 78	Mar 79
		\$ 671	15				
TOTAL APPROPRIATIONS \$11,428							

MANHOURS

FUNCTION AND DESCRIPTION	QTY	PLANNED FUNDS	SAVINGS		SPEC COMP DATE	PURCHASE ORDER DATE	ON LINE DATE
			FY80 (175A/C)	USAF			
1. ASSEMBLY							
Automatic Drilling Panel/Wing Assy 2	Lot	\$ 150			Dec 76	Feb 78	Jan 82
Minor Plant Equip (Replacement)	Lot	100			9-77 - 12-79	10-77 - 1-80	11-77 - 5-80
Aircraft Systems Utilities Serv	1	750	11,189		A&E Subcont.	6-79 - 10-79	Apr 80
2. MACHINE SHOP							
Profile Mill, 5-Axis, 3 Spdl	2	\$6,712	125,167		Aug 76	Aug 77	Dec 79
Profile Mill, 4-Axis, 3 Spdl	1	1,000	19,432		Sep 78	Jan 79	Aug 80
Machining Center, 5 Axis	2	1,470	34,160		Sep 77	Mar 78	Dec 79
Machining Center, 4 Axis	1	586	14,971		Feb 78	Mar 78	Jun 79
Drill, Turret, NC	2	104	7,560		Oct 78	Nov 78	Nov 79
Lathe, Engine, N/C	1	192	4,456		Oct 78	Jan 79	Feb 80
Grinder, Universal	1	85	1,589		Jul 78	Oct 78	Feb 80
Grinder, Centerless	1	80	1,590		Jul 78	Oct 78	Feb 80
Tool & Cutter Grinder, N/C	1	240	6,929		Mar 78	May 78	May 79
Drill Pointer, Semi-Auto, 3/32-1/2 Cap	1	34	8,223		Nov 77	Dec 77	Aug 78
3. SHEET METAL							
Press Blanking	1	\$ 392	4,612		Aug 77	Dec 77	Oct 79
Press, Punch	3	202	2,880		Nov 77	Apr 78	Jan 79
Press, Stretch	1	1,250	6,760		Jun 77	Jan 78	Dec 79
Press, Stretch Draw	1	775	2,197		Sep 77	Jan 78	Feb 80
Press, Brake	2	94	1,403		Aug 78	Nov 78	Jul 79
Routing & Drilling Machine	1	300	4,253		Aug 78	Jan 79	Apr 80
Refrigeration System	1	80	607		Sep 78	Dec 78	Feb 80
Small Parts fabrication Sys	1	250	8,111		8-78 - 9-79	10-78 - 10-79	4-79 - 12-79
Deburring Machine, Sheet	1	100	2,651		Nov 77	Apr 78	Jun 79
Refrigerator, Portable	8	135	1,935		Aug 78	Dec 78	Jul 79
Small Sheet Metal Equipment	Lot	150			12-77 - 9-79	1-78 - 10-79	Dec 79
4. MATERIAL HANDLING & FIRST CUT							
Shear, Automated	1	\$ 250			Jun 78	Oct 78	Nov 79
Modernize Material Handl Fleet	37	300			11-77 - 8-78	1-78 - 9-78	4-78 - 3-79
5. QUALITY ASSURANCE							
Penetrant Inspection System	1	\$ 300	24,182		Aug 78	Dec 78	Oct 79
Moving Scan X-Ray System	1	100	4,375		May 78	Aug 78	May 79

APPENDIX F
SAMPLE

FOR EARLY DOMESTIC
DISSEMINATION (FEDD) CLAUSE

Performance under this contract may result in the generation of data having significant early commercial potential. Notwithstanding any other provisions of this contract, the data developed hereunder, shall be considered as falling within the following categories and shall be treated in accordance with the conditions specified therein.

a. Category 1 Data

This data shall comprise all data developed and specified to be delivered to the Government under this contract, with the exception of Category 2 data described below. Category 1 data will include but is not limited to progress, summary and or final technical reports, test results, and other general information and data necessary for the technical management and business administration of the contract. The rights of the parties to Category 1 data are specified in the Rights in Data and Computer Software clause of this contract.

b. Category 2 Data

This data shall include detailed technical data, engineering drawings and manufacturing information. Specific requirements thereof shall include, but not be limited to: design layouts, drawings, analyses, details of unique processes essential to design and manufacture, details of performance ratings; dimensional and tolerance data; critical manufacturing assembly sequences; input and output parameters; physical characteristics, including forms and finishes; details of material identification; inspection test and evaluation requirements and criteria; necessary calibration information; and quality control data. It will not include contractor's standard commercial and proprietary data, as defined in the Rights in Data and Computer Software clause of this contract.

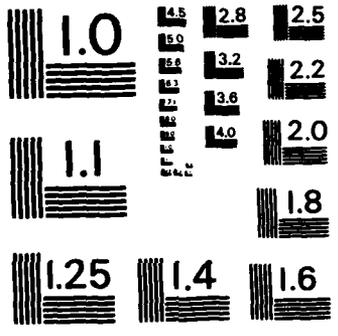
When any or all of the Category 2 Data is required to be furnished to the Government under this contract, or when such data is requested from the contractor by either the Government or U.S. domestic companies, it will be furnished the requestor without charge. (Collection and reproduction costs may be charged to the non-Governmental requestor). Such Category 2 Data shall be marked with the Restrictive Use Legend set forth below and the data shall thereafter be handled in accordance with the conditions of the legend and these provisions.

For Early Domestic Dissemination Legend:

Because of its possible significant early commercial value, this data developed under a U.S. Government contract is being disseminated within the U.S. in advance of general publication. This manufacturing data may be duplicated and used by the recipient with the expressed limitations that the data will not be published nor will it be released to foreign parties without

permission of (name of contractor) and appropriate export licenses (22 USC 1934; 22 CFR, Pt. 121; 22 USC 1611-1613; 50 USC App 2401-1413; and 15 CFR Pts 370-399). Release of this data to other domestic parties by the recipient shall only be made subject to the limitations contracted in Contract _____. This limitation shall be considered void after _____. The legend shall be prominently marked on any reproduction of this data in whole or in part.

Further the contractor shall not publish or grant permission to publish Category 2 Data, release or grant permission to release said data to foreign parties, or transfer this information to foreign parties in any form without prior concurrence of the Contracting Officer. However, any designation of data as Category 2 Data shall not be construed to prohibit the contractor or the Government from engaging in general discussions - presentations involving such data with other domestic parties. Further, the contractor agrees not to release Category 2 Data to other domestic parties without first obtaining an agreement by the parties to abide by the limitations of the legend. It is also agreed notwithstanding the limitations of the legend applied to Category 2 Data delivered to the Government under the terms of this contract, that the Government may release such data to foreign governments for fulfillment of Government purposes. The provisions and limitations of the legend will become void as to Category 2 Data at a time period two years after the aforesaid Category 2 Data is contained in a general publication. The rights of the parties to such data shall thereafter be governed by the Rights in Data and Computer Software clause of this contract.



MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A

APPENDIX G
SAMPLE

LICENSE CLAUSE

(a) Definitions:

(1) "Proprietary Data" as used herein means any data generated at private expense, including limited rights technical data and restricted rights computer software.

(2) "At Private Expense" as used in the phrase "generated at private expense" means that generation was accomplished without the direct payment of Government funds, and includes (without limitation) independent research and development funds.

(b) The Contractor agrees that, as to any proprietary data of the contractor incorporated into the manufacturing system to be developed under this contract and which must necessarily be used to successfully practice such system, contractor will, at the request of the Government, grant a non-exclusive license under terms and conditions reasonable under the circumstances to other competent domestic contractors to the Government, such license to include, at licensee's option, the right to purchase technical assistance, on terms agreeable to the contractor, i.e., technical advice relating to the use of any furnished technical data. Such data shall be for use by any contractor so licensed solely for procurement by the Government and for Government purposes for such licensed contractor. The licensee shall insure that all proprietary data received from the licensor shall retain the licensor's proprietary marking.

(c) Any license to be granted under (b), above, shall include, inter alia, the following required provisions:

(1) Initial fee for provision of data, plus royalties for items sold or work performed where said data was used in the manufacturing process;

(2) Periodic reports by licensee, and auditing rights for licensor at licensee's expense;

(3) Protection of licensor's proprietary information;

(4) Agreement by licensee to hold harmless and indemnify the licensor as to any claim by, or liability to, licensee, to the Government or to third parties resulting from any activities under or related to the license; and

(5) Technical assistance (as defined in b, above) by licensor at licensee's facilities, purchaseable up to an agreed maximum number of days within an agreed period of time, at licensor's standard rates for such assistance (or, in the absence of standard rates for such assistance, at a per diem rate 2.5 times the individual's daily salary), plus all travel and living expenses. Travel time to and from licensee's facilities shall count as time worked.

(6) Grant back to licensor a non-exclusive, royalty-free license to make and sell, for any improvements made by licensee to the licensed technology including any patents thereon, and the right to cost free disclosure of any instructions in the use of such improved technology and patents.

(d) As to any fees, royalties, and other payments due licensor under any license granted under (b), above in the event licensee does not make such payments in accordance with the terms of its license, the contractor shall upon notice to the Government, have the right to terminate any such license unless the Government assumes such payments including reasonable interest and costs on unpaid amounts.

(e) The Government shall have the right (1) to order the contractor to grant the license defined in paragraph (b) if the contractor is unable to reach agreement with a responsible party who has negotiated in good faith or, (2) to approve or disapprove agreements negotiated by the parties, provided however, disapproval shall be limited to the reasonableness of the royalty rate. In determining the reasonableness of royalty, the contractor's rights to a reasonable return on investment and expenditures directly related to this contract statement of work and including a reasonable profit shall be recognized; provided, however, that such investment and expenditures would otherwise be allowable in accordance with the cost principles applicable to the contract, and that the investment and expenditures are not charged to the government under any grant or contract. Disputes will be appealable under the disputes clause of this contract.

(f) The Government agrees to hold a contractor harmless from claims by and liability to licensee, and third parties - including the Government - connected with activities under or related to any license granted under this clause, provided such liabilities are represented by final judgments or settlements (when such settlements are approved in writing by the Government), and expenses incidental to such liabilities, except liabilities for which the contractor is otherwise responsible under the express terms of the clause or clauses, if any, specified in the contract. The contractor shall give the Government or its representatives immediate notice of any suit or action filed, or prompt notice of any claim made, against the contractor arising out of performance of this contract or arising under or related to the license. The contractor shall furnish immediately to the Government copies of all pertinent papers received by the contractor. The contractor shall, if required by the Government, authorize, or at its option may elect to have, representatives of the Government to settle or defend any such claim and to represent the contractor in or take charge of any litigation in connection therewith; provided, however, that the contractor may, at his own expense, be associated with the representatives of the Government in the settlement or defense of any such claim or litigation; and provided, further, that no settlement will be made without the express written consent of the contractor. Any approval of the Government and consent by the contractor required herein shall not be unreasonably withheld.

(g) Nothing contained in this agreement shall constitute nor shall the contractor be required to include in any license granted, any commitment which may be construed as a warranty or representation as to the scope or validity of any contractor patent or that anything made or sold by the Government or licensee will be free from infringement of patents held by third parties.

(h) Contractor will exercise best effort to have any subcontractor performing research or development work under this contract, and which work will require the incorporation of this subcontractor's proprietary data to accept this clause in its subcontract and to flow the clause down to lower tier subcontracts for research and development work. If any subcontractor shall refuse to accept the clause, the contractor will negotiate the best clause possible, make the subcontract conditional on Government approval within 20 days, and report the facts to the Contracting Officer within 10 working days after attainment of the best clause possible. Provided however, that subcontractors supplying component parts of a manufacturing system developed under this contract shall be required to furnish or license proprietary data only if there is a determination by the Contracting Officer, after notice to the subcontractor and hearings that the components or products employing the use of such data and adequate to enable practice of a manufacturing system developed under this contract are not being supplied by the particular subcontractor in sufficient quantities to satisfy Government needs.

APPENDIX H

SAMPLE

INSTRUCTIONS TO OFFERORS

TECHNOLOGY MODERNIZATION (TECH MOD) PROGRAM

1. Submit as part of the manufacturing proposal, a proposed Tech Mod program as described in the Statement of Work. (Ref. SOW paragraph). Required information is specified below.
2. Describe the proposed overall approach to Tech Mod as it relates to the proposed manufacturing plan. Show how the Tech Mod will be managed and its relationship to the overall program management structure. Describe Tech Mod milestones for Phases I, II, and III. Provide rationale.
3. Describe how Phase I study will be conducted and its scope. Discuss duration of study and provide rationale. Show, in detail, what technologies, processes, equipment and/or facilities will be considered. Indicate sources of data. Provide insight into management philosophy and structure, including role of sub-contractors or purchased services, if applicable. Furnish manloading chart showing phasing, type, and numbers of people involved in Phase I study. Identify direct and indirect personnel, including subcontractors. Provide functional breakout of hours by category with full description of what type of work is involved. Provide rationale for all hours proposed, including level of expertise proposed, quantities and phasing. Describe what each category of labor will be doing and their role in the study. Show division of labor and how integrated into a whole. Specify how cost/benefit analyses will be done. Describe economic analysis and cost/savings tracking modeling to be developed and/or used to make tradeoffs between projects. Describe criteria for prioritizing Tech Mod projects/actions. Provide insight as to how models will be developed or existing models modified. Explain rationale for all of the above.
4. Describe in detail the proposed manufacturing plan without Tech Mod and with Tech Mod. Explain the differences. State in detail what is included in the baseline (Target Price) of the program without Tech Mod. Provide rationale. Furnish copy of the prime's strategic capital investment planning document(s), if available.
5. Furnish a preliminary Tech Mod business deal, including budgetary estimates for Government and contractor investment/savings over the life of the program. Include separate estimates of savings for each program of other Government Agencies (Air Force, Army, Navy, NASA, DOE, DOT) over the same time period. Specify how savings will be shared, hurdle rates for return on investment, and projected business base for the Tech Mod. If applicable, describe provisions for award fee, termination projection/indemnification, performance incentives, and other special arrangements. Break out the elements of the preliminary business deal by the three different Tech Mod phases. Explain rationale for all of the above.

6. Highlight any special rights in data provisions that may be required especially for study reports or computer models developed for the Tech Mod effort.

7. If flowdown of Tech Mod requirements to subcontractors is involved, state how this will be managed and what criteria will be used to select subcontractors for Tech Mod application. Indicate the subcontractors selected and explain rationale. Show relationship between prime and sub Tech Mods, including management, scope, candidate technologies/actions. In other words, provide the same information for subcontractors as specified for prime above.

8. Discuss relationship of Tech Mod to any Government owned facilities and/or equipment. If Government investment is required for these, explain and justify.

Transition/Implementation Plan

<u>Subject Area</u>	<u>Document</u>	<u>Status to Date</u>	<u>Require Action(s)</u>	<u>Responsible Office</u>
<u>I. TFIRE Products</u>				
<u>Acquisition</u>				
Major Systems Acquisitions	DoDD 5000.1	Input already include in staffing drafts	Final staffing, publish	OUSD&E(AM)-MSA
Major Systems Acquisition Procedures	DoDI 5000.2	Same as DoDD 5000.1		
Source Selection	DoDD 4105.62	Input already provided to OPR	Initial formal staffing, finalization publish	OUSD&E(AM)-MSA
Production Mgmt.	DoDD 5000.34	Input already provided to PESO	Initial formal staffing, finalization publish	DLA--(PESO)
Contracting	DAR	TFIRE* recommendations finalized	Develop DAR case, submit, follow-up	OUSD&E(AM)-IR
<u>Resources</u>				
Productivity	DoD Guide	TFIRE draft guide finalized	Initial formal staffing, finalization, publish	OUSD&E(AM)CPE
MANTECH	DoDI 4200.15	TFIRE draft finalized, coordinate w/MTAG	Final staffing, publish	OUSD&E(AM)-IR

* TFIRE - Task Force To Improve Industrial Responsiveness

Subject Area	Document	Status to Date	Require Action(s)	Responsible Office
Availability of materials	DoDI 4210.4	TFIRE draft finalized, coordinated priorities & allocation council	Initial formal staffing finalization, publish	OUSDR&E(AM)-IR
Priorities & Allocations	DoDI 4400.1	Same as DoDI 4210.4		
Industrial Preparedness	DoDD 4005.1	TFIRE draft finalized, informal coordination with Steering Group & Svcs.	Final staffing, publish	OUSDR&E(AM)-IR
Industrial Preparedness Planning	DoDI 4005.3	Same as DoDD 4005.3		
<u>Other</u>				
Multiple Areas	SECDEF policy statement	TFIRE draft provided to OUSDR&E(AM)-IR	Follow-up	OUSDR&E(AM)-IR
<u>Recommended follow-on Actions</u>				
<u>Acquisition</u>				
Production Readiness Reviews	DoDI 5000.38	No action by TFIRE	Revise to reflect new policies as contained in DoDD 5000.1, DoDI 5000.2 and DoDD 5000.34	DIA-(PES0)
Industrial Preparedness	DoD Manual	Reviewed	Revise to reflect new policies as contained in DoDD 4005.1 and DoDI 4005.3M	OUSDR&E(AM)-IR

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